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# Port Houghton/ Cape Fanshaw Timber Sale Project

## Revised Draft Environmental Impact Statement

### Volume 2 - EIS Appendices



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Port Houghton/Cape Fanshaw



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# **Appendix A**

## **Unit Summary Cards**



# Abstract

Abstract of the paper presented at the 1998 Annual Meeting of the American Psychological Association, Washington, DC, September 12-16, 1998.

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## SILVICULTURAL SYSTEMS AND METHODS APPLICABLE TO THE PROJECT AREA

### Even-Aged Management

#### Clearcut

Traditional clearcutting is a useful option for the old-growth western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*) stands in the project area, where wildlife and other resource objectives do not rule it out. Numerous opportunities exist to incorporate special landscape design features in the layout of clearcut units to mitigate their appearance. These include techniques such as shaping and locating units to mimic the natural landscape and feathering of clearcut edges near muskeg, low-productivity areas, and landforms where naturally varied edges are common (such as at the top of natural openings). Reasons for clearcutting in the project area include those presented below:

- Most old-growth stands are beyond the age and condition where partial cutting would improve growth of the remaining stand.
- Clearcutting allows more solar radiation to reach the forest floor, which raises soil temperature and speeds up the decomposition of thick organic mats, increasing nutrient availability.
- It offers flexibility for selecting windfirm boundaries.
- Clearcutting and subsequent sanitation treatments are the most effective means of eliminating hemlock dwarf mistletoe (*Arceuthobium tsugense*).
- It tends to result in a greater proportion of Sitka spruce in the regenerated stand (where logging systems are used that scarify soils), adding economic value and ecological diversity.
- It requires fewer miles of road construction for removal of a given amount of timber.
- The predominant species, western hemlock and Sitka spruce, are easily damaged and subject to wound infection with partial cutting.
- It is usually the most economically efficient method of logging.

Current Forest Service policy outlines seven circumstances under which clearcutting is allowed. In a June 4, 1992 letter from the Chief of the Forest Service to Regional Foresters and Station Directors, it is stipulated that clearcutting “would be limited to areas where it is essential” to meet forest plan objectives and involve one or more of the following circumstances:

1. To establish, enhance, or maintain habitat for threatened, endangered, or sensitive species.
2. To enhance wildlife habitat or water yield values, or to provide for recreation, scenic vistas, utility lines, road corridors, facility sites, reservoirs, or similar development.
3. To rehabilitate lands adversely impacted by events such as fires, windstorms, or insect or disease infestations.



4. To preclude or minimize the occurrence of potentially adverse impacts or insect or disease infestations, windthrow, logging damage, or other factors affecting forest health.
5. To provide for the establishment and growth of desired trees or other vegetative species that are shade intolerant.
6. To rehabilitate poorly stocked stands due to past management practices or natural events.
7. To meet research needs.

### **Clearcut with Reserve Trees**

Under this variation of the clearcutting method all of the stand is cut except for scattered trees that are reserved for various purposes, as described later. This method resembles the seed tree method, but the reserve trees are generally not relied on to regenerate the site. Advantages are the same as for clearcutting.

Clearcutting with reserve trees is appropriate for many of the medium-to-high productivity stands in the area. As discussed for clearcutting, it is necessary to consider design of units for visual quality as well as logging feasibility. Additional advantages and criteria for application are noted below.

1. The reserve trees are standing residuals for snag recruitment and large down woody debris when blown over. This is important to many of the ecological functions of the site. When the trees are standing, cavity-nesting wildlife can benefit, and trees can provide some mitigation for visual impacts. When blown over, uprooted trees create pit and mound microrelief which increases soil drainage, increases decomposition rates of deep organic soil layers, and exposes the mineral soil that promotes regeneration of Sitka spruce.
2. The reserve trees can be clustered for efficiency. Untreated enclaves can be left within the unit to soften the visual appearance of the area and make it appear more natural. Reserve enclaves can be designed for operational efficiency by considering setting locations.

For analysis purposes, up to 10 percent of the net scribner volume may be retained within a harvest unit classified as clearcut with reserves. All units not listed in the categories below are considered clearcut and clearcut with reserves. Reserve trees are prescribed in clearcuts where operationally feasible, and are subject to the loggers' ability to operate safely, with reasonable efficiency.

### **Overstory Removal**

This is the removal cut of a two-storied (upper canopy and mid-canopy) stand, releasing the uniform understory (see Shelterwood below). Units with a functionally two-storied stand structure considered for overstory removal include: 331187, 398120, 398127, and 398130.



## **Shelterwood**

Conventional shelterwood harvest includes both the initial operation (the seed cut) and the final operation (the **removal cut**, sometimes referred to as **overstory removal**). In the uniform shelterwood method, regeneration must be protected during the removal cut. The number of trees retained in a shelterwood usually ranges from 10-30 mature trees per acre.

The uniform shelterwood method is not appropriate for the project area for two reasons: (1) it is not needed to provide seed and shelter for the new generation of trees; and (2) removal of the shelter trees would be an expensive, operationally difficult, and unnecessary procedure. Nevertheless, some stands in the project area have a stratified structure, with scattered large trees overtopping another stratum. These stands qualify for an overstory removal, which would release the understory stratum for timber production, taking advantage of the advanced growth for a potentially shortened future rotation. Compared to clearcutting, overstory removal would maintain more vertical habitat structure for wildlife.

## **Shelterwood with Reserves**

In the project area, the shelterwood with reserves method leaves shelter trees on site for purposes other than regeneration of the new stand. Shelterwood with reserves provide important ecological functions: left standing, they benefit cavity-nesting wildlife; blown down, they would provide soil disturbance patterns within harvest units throughout the rotation, form pit-and-mound microtopography, increase soil development, and provide a regeneration site suitable for desired species.

Because of the different objectives for shelterwood in this area, the reserve trees selected for the site should be culls, those with little or no commercial value. It is unlikely that this would have adverse genetic effects on the successor stand, since cull trees that have survived hundreds of years probably represent trees that were sound, healthy competitors for at least the span of a normal rotation.

Although some of the reserve trees would blow down; other trees would remain standing on the unit, providing structural diversity to the new stand. Because of the irregular blowdown patterns, only portions of the area will have pit-and-mound topography resulting from windthrown trees. The irregular nature of the shelterwood would encourage wider species composition and structural variation than other methods. Other issues that should be addressed with the shelterwood method include:

## **Economics**

The shelterwood method is more expensive than clearcutting.



## **Feasibility**

Harvest unit planning has identified units where partial harvesting can be included in the design due to operational feasibility (logging equipment capability).

## **Technology**

Local experience and equipment availability may limit the amount of shelterwood and other partial cutting applications. Partial harvest capability by logging system is discussed in a subsequent section within Timber.

## **Landscape Design**

It appears that the shelterwood with reserves method has the greatest benefit when used on slopes of about 30 percent or less—those conditions most subject to podzol formation. In many cases, it should be possible to design harvest units with a combination of clearcutting and shelterwood with reserves, using each method where it is best suited. In addition, by combining treatments in the same unit, we would have side-by-side comparisons of results. As described elsewhere, this approach facilitates monitoring and adaptive management strategies.

For analysis purposes, a unit is classified as shelterwood with reserves or overstory removal where approximately 10 percent to 50 percent of the net scribner volume is retained within the unit. There are 57 units where shelterwood with reserves is prescribed for part or all of the unit.

## **Uneven-Aged Management**

### **Group Selection**

This management method has been described as uneven-aged management on a forest (large-scale) basis and even-aged management on a group (small-scale) basis. A group is similar to a forest gap, less than stand size but larger than the area occupied by a single tree. Group selection can be applied up to about 2 acres. Beyond that point, the method would be considered a small clearcut, which is a viable approach for meeting some objectives.

Group selection is feasible for sanitation/salvage of areas with Alaska yellow cedar decline or in areas with specific visual quality objectives. Because of the difficulty of tracking and controlling planting and other cultural operations on numerous small units, it is likely that natural regeneration would be used with this method. Most groups would regenerate to hemlock. Where possible, spruce or cedar should be left on edges as a seed source.

Potential logging methods for group selection include helicopter, cable, and ground-based skidding. With helicopter logging, it is difficult to get sufficient site disturbance to regenerate Sitka spruce or disturb substantial areas with podzol development. Opportunities to cable log



groups are limited. Ground-based skidding is not practical because of steep slopes and areas with saturated soils.

Windthrow would be a serious problem with group selection. To minimize the risk, groups should be linked to bogs, fens, and peatlands or other windfirm boundaries wherever possible.

For analysis purposes, 25 percent of the net scribner volume would be recovered during the first of four planned entries over approximately 30-year periods in the course of this rotation. The following units have some group selection harvest prescribed: 321025, 321197, 398123, 398126, 398130, 332042H, and 398127H. In addition, one large group selection area that covers the lower portions of the 321, 322, 331, and 332 watersheds (the flats on the north side of Cape Fanshaw) totaling 546 acres, is proposed for helicopter harvest in Alternative D. In this group up to 25 percent of the net scribner volume would be removed.

### **Individual Tree Selection**

This method involves the harvest of individual trees rather than groups of trees. In concept, trees are removed from all size classes, creating a balanced distribution within the stand. In practice, the method is difficult to apply on a sustainable, long-term basis. Control of species composition is exacting, due to different growth rates, shade tolerances, and regeneration habits. Desired stocking levels are often impractical, since cutting of small, non-merchantable trees at every entry can be expensive and operationally unfeasible. This regeneration method frequently leads to high-grading (removal of preferred trees only) of the stand. The individual tree selection method is not applicable to the project area.

## **Intermediate Stand Treatments**

### **Sanitation and Salvage**

These treatment types are integrated into several of the silvicultural approaches previously described. Logging of individual trees in areas with cedar decline is classed as sanitation/salvage, since harvest is not designed to regulate the stand as described earlier. This treatment is intended to provide a high value yield from a defective stand with moderate potential and low current net productivity. It should leave a thrifty stand of good quality growing stock, releasing any existing advanced regeneration. Wildlife travel corridors and nesting structure would be maintained. There would be minimal visual impact. Some windthrow is desired for the areas prescribed for salvage treatments. These areas have significant amounts of Alaska cedar decline, which is associated with poor soil drainage. When blown over, uprooted trees create pit and mound microrelief which increases both soil drainage, and decomposition rates of deep organic soil layers.

For one salvage unit proposed for the Stikine Area (totaling 679 acres), up to 50 percent of the net scribner volume would be recovered under helicopter harvest operations in Alternatives B and D.



## **Precommercial Thinning**

This treatment is a future option in regenerated stands to reduce overly dense conditions and increase crop tree growth. It also offers an opportunity to control species composition. No stands in the project area are presently in need of precommercial thinning; however, site preparation of approximately 5 to 10 percent of proposed harvest units would include thinning of advanced regeneration.

## **Commercial Thinning**

This treatment is an option in regenerated stands, but the predominant species are thin-barked and subject to logging damage. Present silvicultural decisions and treatments do not preclude commercial thinning in the future. Commercial thinning opportunities are recognized for units where site productivity would provide a potential increased timber yield and would amount to portions of approximately 25 percent of the proposed harvest units in any alternative.

## **Specific Silvicultural Techniques and Approaches**

Several silvicultural approaches planned for the Port Houghton/Cape Fanshaw project area are independent of silvicultural system or method. These include:

### **Mitigation of Cedar Decline (working hypothesis)**

Some ecologists believe that cedar decline is a unidirectional succession that ultimately results in a climax community of bog or muskeg. Widespread succession from forest to bog vegetation may be partly caused by podzol formation, nutrient immobilization, and lack of soil disturbance (Bormann and Sidle 1990). These scientists suggest that deep mixing of the soil could set back this succession and restore soil productivity.

Suggested technique - Use deep mechanical disturbance in areas with cedar decline to bring mineral soil to the surface. The salvage area and group selection areas at the base of the 321, 322, 331, 332, and 398 watersheds are helicopter logging units that rely on the windthrow, which would be generated from the many small groups harvested throughout the units, to create soil disturbance.

Expectation - If the working hypothesis is correct, succession would be set back to the point where a wider range of species is capable of growing on the site, and the podzol development would have been reduced. Potentially, the treatment could avert the conversion of previously productive timber sites to bog or muskeg.

### **Dwarf Mistletoe: Management of Infected Stands**

Hemlock dwarf mistletoe infects many western hemlock stands in the project area. Dwarf mistletoe affects tree growth and stand productivity dramatically. Witches brooms and swellings



can adversely affect height and diameter growth, reduce tree vigor, and make infected trees more susceptible to insects and other diseases. Tree mortality may increase. Bole infections may reduce wood quality and provide infection courts for decay fungi.

Total control of dwarf mistletoe in existing stands is probably not feasible. Instead, it is more realistic to attempt control in the regenerated stand following harvest. Ways to reduce dwarf mistletoe in the new stands include:

- Clear-cut infected stands. Since dwarf mistletoe is an obligate parasite, it cannot live or reproduce on slash or downed logs.
- Consider dwarf mistletoe in design and layout of clearcut boundaries. Severely infected western hemlock should not be left on the clearcut perimeter. Non-susceptible species should be left on the harvest-area boundaries to reduce the source of inoculum and provide a mixed-species stand in the clearing.
- If resource values and objectives allow, use larger harvest units in infected stands, to reduce the relative area exposed to infected trees on the edges of the harvest unit.
- Use the silvicultural methods, clearcut with reserves and shelterwood with reserves only in stands or portions of stands where reserve trees are uninfected western hemlock or alternate species, such as Sitka spruce or Alaska-cedar.
- Where group selection is prescribed, consider the same recommendations given for clearcutting.
- Clean heavily infected stands after logging. Dwarf mistletoe infections on nonmerchantable trees left after logging are an infection source for the new stand. Cutting these trees would remove the infection source. In heavily infected stands, many smaller nonmerchantable trees would have latent infections that are not apparent for several years. Control operations should assume that these trees are infected, and they should be killed.
- Defer cleaning of lightly infected stands until the precommercial thinning. Recent research has shown that infection levels in western hemlock regeneration beneath infected residual trees is lower than those recorded for similar stands further south. In addition, dwarf mistletoe infections in second-growth western hemlock usually occur in the lower crown, where spread of the disease is reduced and infected branches are often killed by shading. At the time of precommercial thinning, use the treatment as an opportunity to clean the stand of dwarf mistletoe. This can be done by cutting all western hemlock infected with dwarf mistletoe, selecting other species such as Sitka spruce as crop trees, and—the least preferred method—pruning of infected branches in situations where infection is confined to the lower crown of the tree.



## How Wind and Its Effects Were Considered

For the proposed harvest areas, wind is a key consideration for management. Wind is the dominant natural disturbance mechanism in Southeast Alaska. Historic silvicultural systems and harvest patterns have been designed to avoid windthrow to the extent feasible. At Port Houghton/Cape Fanshaw, however, silvicultural prescriptions consciously integrated wind effects into treatment designs to attain ecological benefits: mixing of organic layers with a mineral substrate, creation of pit-and-mound microtopography, reduction of podzolization, seed source for regeneration of the new stand, and maintenance of a diverse vertical stand structure.

The challenge of project design at Port Houghton/Cape Fanshaw is to minimize the economic losses associated with windthrow, while realizing some of the ecological benefits of wind as a disturbance mechanism. Those apparently conflicting objectives can be achieved to some degree by considering wind effects at both the landscape and the stand levels.

Wind Data for the Port Houghton Area - Detailed information on ocean winds has been collected by the National Oceanic and Atmospheric Administration (NOAA). These data, which are summarized from the Five Finger weather buoy near Port Houghton, cover seven years from January 1985 to December 1992. This information provides a basis for examining key climatic parameters, including wind speed, direction, frequency, duration, and seasonal differences.

Significant findings include:

- **Wind Speed:** Major wind gusts at the buoy were recorded. For the entire eight-year period, there were no gusts that exceeded 70 mph, and only eight gusts were 60 mph or greater. Average maximums were in the 40-50 mph range.

None of these events could be considered major storms. This is not unexpected, since the significant storms that shape the forests of Southeast Alaska occur only infrequently. A major wind event occurred around 1860, creating the 120 year-old western hemlock stands scattered along some of the ridge tops in the western portion of Cape Fanshaw.

The location of the project area also affects wind speed and other characteristics. The many islands to the west tend to protect the Port Houghton area from direct exposure to ocean winds.

- **Wind Direction and Seasonal Differences:** The most consistent wind direction was from the southeast. In fact, virtually all of the major wind events came from this quadrant. More gentle winds from the north and northeast were also common. During late spring and summer, the direction tended to shift to the west and southwest, but these winds were also moderate.

Interpretations of the wind data support the approaches used to develop silvicultural prescriptions and harvest plans for the project area. The primary direction of storm winds was consistently



considered during project planning and layout. In many cases, the modifying effects of topography were considered in prescribing treatments.

Provided below are specific ways that wind and its effects were considered in unit location, design, and harvest method:

Sanitation-Salvage - This intermediate silvicultural practice is prescribed on south and southeast slopes in the Stikine Area (VCU's 86, 87, and 89) that are visually sensitive and subject to yellow cedar decline. Many of these areas are characterized by short, open-grown trees, those that are inherently more windfirm. Major blowdown is not expected to be a problem in these areas following logging. However, it is intended that some additional opportunities for soil disturbance (windthrow, creating pit-and-mound microrelief) are created during this intermediate stand treatment by creating new edges, exposing portions of the stand to the effects of wind.

Group Selection - This uneven-aged regeneration method was prescribed for a variety of situations, including: (1) areas that are visually sensitive, such as the North Point area to the east of Sandbourn Canal and the upper slope head waters of Negro Creek; (2) isolated small stands or patches of high volume and value, such as the flats facing Port Houghton on the north side of Cape Fanshaw; and (3) opportunities to apply an alternative silvicultural treatment consistent with concepts from ecosystem management and adaptive management.

On the flats, the timber tends to be shorter and more open-grown. These stands are inherently more windfirm than the taller and more dense stands of the upslopes. On both the flats and the isolated upslopes, groups would be tied to muskegs and other natural openings where feasible, to increase edge stability.

Most of these groups would be logged with helicopters, resulting in minimal soil disturbance. Reducing windthrow and other soil disturbance mechanisms could have negative long-term ecological effects, since there would be little mixing of organic layers and mineral soil resulting from management activities. It is anticipated that windthrow potential would increase in group selection harvest units on upland slopes. This provides an opportunity for long-term monitoring or observation of ecological functioning as compared with other silvicultural systems, an application of the adaptive management philosophy of management as an experiment.

Clearcut, Clearcut with Reserves, and Shelterwood with Reserves - Wind effects were initially considered at the unit design level. In many instances, unit shape and orientation were altered to reduce the likelihood of blowdown. Since the direction of prevailing winds is from the southeast, units were located to avoid ridge top notches that could funnel and thereby accelerate the winds. Where possible, cone-shaped openings were oriented with the narrow end toward the prevailing winds. In the Sitka spruce and western hemlock forest types, it was often necessary to prescribe greater amounts of retention for visual mitigation purposes, than in the western hemlock/Alaska-cedar or mixed conifer forest types. Conversely, lower productivity areas were often less vulnerable to excessive windthrow, since the trees were more open-grown and shorter. Ultimately, a group of factors had to be considered on a unit basis. The objective



has been to balance the need for ecological disturbance by wind with the need to avoid excessive deterioration of residual stands adjacent to harvest areas.

Some units were consolidated to reduce the vulnerable forest edge, especially the intervening strips that connect harvest areas (units 29126, 29127, 29130, 332075, 341105, and 341107). The initial unit location was field-checked and adjusted to tie with windfirm boundaries, such as muskeg or scattered, open-grown trees. For example, the upper portions of Unit 332075 were tied to a windfirm V-notch to avoid wind-scouring into the forested edge.

Within harvest units, many prescriptions call for retention of reserve trees. Cull trees are preferred in all species, since there is no intention of harvesting these trees later. Species selection also affects reserve tree selection. For example, yellow cedar is not only a desirable leave tree for seed production, but it also tends to be windfirm due to its shorter height, open-growing habit, and other crown characteristics. Sitka spruce, on the other hand, is only marginally more windfirm than western and mountain hemlock, but it often assumes a dominant or emergent position in the stand, and is thus more acclimated to wind exposure. Again, the silvicultural prescriptions have attempted to be site-specific in recognizing the localized potentials of each stand.

Realistically, most of the reserves are expected to blow down. This will yield ecological benefit with no economic loss except some increase in logging cost. During sale layout, trees that can be left with little or no cost should be designated as reserves. Site-specific design on a setting basis will probably be the most practical and effective approach to identifying reserves that meet resource, operational, and economic objectives.

Alternatives B and D contain the highest proportion of areas where windthrow is desirable. These areas are the volume class 4 and 5 stands in the Stikine salvage area, and the lowlands of the 321, 322, 331, 332, and 398 group selection areas in North Fanshaw and East Houghton. Alternatives C and E contain fewer proposed harvest acres where windthrow is desirable, thus Alternative C would have the highest risk of negative windthrow impact.



## PORT HOUGHTON/CAPE FANSHAW EIS INTEGRATED UNIT SUMMARY FORM:

### DESCRIPTIONS OF DATA FIELDS AND COMMENTS ON USE

The Integrated Silvicultural Prescription form developed for the Port Houghton/Cape Fanshaw Environmental Impact Statement (EIS) incorporates a broad array of data and analysis that pertains not only to timber, but to a broad range of resource objectives. The form captures the logic leading to development of recommended silvicultural alternatives.

The following is a summary of the significant resource considerations leading to the development of the unit. The codes and abbreviations used on the card are described below:

**Unit Identification** includes:

- **VCU:** Value Comparison Unit, a broad land management classification.
- **Unit number:** A numbering scheme that combines the watershed and subwatershed number (first three digits), and additional numbers uniquely assigned to each unit.
- **Unit acres** (Accuracy is  $\pm 2$  acres).
- **Aerial Photography:** The year, flight line, and photo number of the aerial photograph for the unit.
- **Total Net MBF:** Computer generated number; accuracy is to the nearest 5 MBF.

**Site Characteristics** are a summary of the physical, biological, and ecological environmental setting for the unit. They include:

- **Topographic Characteristics:** Elevation, slope, and aspect. The average elevation and slope are calculated by formula from the minimum and maximum range typical of the unit. A range of aspect is recorded, as well as the prevalent aspects for the unit as a whole.
- **Biological and Environmental Data:** Includes the biotic and physical factors that affect silvicultural strategies. All biological and environmental information is displayed by Volume Class (VC).
- **Ecological classifications** are referenced to the Chatham Area Plant Association Guide (1/20/94). The predominant forest series and codings are:

Western Hemlock	WH
Western Hemlock/Alaska Yellow-Cedar	HC
Mixed Conifer	MX
Sitka Spruce	SS
Mountain Hemlock	MH
- **Plant Associations** are recorded using the three-digit codes from the Plant Association Guide. Up to two codes are permitted for each VC.
- **Site Index** was measured or estimated using the 50-year index for western hemlock unless otherwise noted. Sitka spruce site index was used in the SS forest series. The



Unit Attribute for site index was weighted-averaged by acres and rounded to the nearest 5%.

- **Windthrow Risk** is the estimated likelihood of catastrophic losses due to wind. The classification incorporates existing site and stand conditions, but also gives weight to the increased wind exposure after timber harvest. Unit walk-through data were cross-checked by the Plant Association Guide Management implications to provide consistency. The Windthrow Risk by VC is used to calculate the acreage-weighted average for the unit. Categories of Windthrow Risk include:

Extreme	E
High	H
Moderate	M
Low	L

- **Soil Drainage** was estimated during reconnaissance and recorded on the unit walk-through card. Estimates were compared with Table A 4-1 in the Plant Association Guide to ensure consistency. Soil Drainage by VC is used to calculate the acreage-weighted average for the unit. Categories include:

Poor	P
Moderate Poor	MP
Moderate	M
Moderately Well	MW
Well	W

- **Forest Protection** includes existing conditions that influence silvicultural treatment opportunities. Ratings are low, moderate, or high in significance. Examples of conditions include windthrow, mistletoe, and Alaska yellow-cedar decline. The Forest Protection condition is noted as a Unit Attribute if present on at least 10% of the unit.
- **Regeneration Potential** is rated by VC from the walk-through. Field estimates are cross-checked with the Plant Association Guide to provide consistency. The Unit Attribute is an acreage-weighted rating.
- **Mass Failure Risk** is a subjective rating based on field reconnaissance and information on soils, slope, geology, plant association, and evidence of mass movement. Ratings are weighted by acres to determine the Unit Attribute. An interdisciplinary approach involving specialists in silviculture, watershed, engineering, and/or soils was used to determine the rating for potential high risk areas. In general, units with high mass failure risk ratings were dropped or areas of high risk were deleted from units.

**Stand Characteristics** include the key environmental variables (timber volume, physical, and stand structure attributes, etc.) used to develop the silvicultural prescription. The field exam method, date, and individual(s) who field-reviewed the unit are listed. The number and type (measure or count) of the stand examination plot are recorded. Atterbury Consultants Inc. (ACI) Super Ace cruising program was used for timber data compilation and calculation.

- A. **Stand Description** is a verbal overview of stand characteristics, including commercial timber attributes, stand structure, environmental conditions, forest protection considerations, and suitability for management.



- B. Timber Volume Statistics** are recorded at two levels of resolution, Unit level and Volume Class by VCU: (1) **Unit summary volume** (net sawlog plus utility) is based upon acres by VC in the unit and the VC averages from a compilation of plots from all units sampled within the VCU. (2) **Unit Level Plot Data** are calculated from plots that were sampled within the unit. In the case where a VC was not field sampled, the VCU average was entered. Differences in cull, timber size, and species composition between units are reflected in the unit level data. However, precision of the unit level data is limited by sample size and sample coverage of the field plots. The compilation of plots at the VCU level allows more statistical confidence in unit, strata, and alternative volume estimates. Unit level plot data totals are VC averages weighted by VC acres. Mean DBG is the quadratic mean diameter of merchantable trees only. The percent by species is a percent of volume. Mountain and western hemlock are aggregated in timber volume statistics. Net Sawlog Plus Utility Recoverable by Prescription is calculated in the Marking Rules section of the form, assuming the selected prescription is implemented.
- C. Stand Structure Statistics** are summaries from the unit level plot data. In the case where a VC was not field sampled, the VCU average was entered. The percent by species is percent of basal area in merchantable size classes. As described for volume statistics, the precision of unit-level data is limited by sample size and coverage of the field plots; thus, compilation of VC averages at the VCU level allows more confidence in stand structure statistics. Dominant average height is the average height of dominants. Submerchantable stocking percent is the percent by area of the stand well-stocked with acceptable advanced reproduction, saplings, and/or poletimber. Normal stocking percent is the current basal area compared to a fully stocked stand as determined from normal yield tables. Unit level plot data totals are VC averages weighted by VC acres.

**Resource Opportunities and Constraints** are the resource considerations used to develop the range of silvicultural alternatives. The primary source of opportunities and constraints was data and analysis from resource specialists. Site-specific conditions that were not noted by other resource specialists but observed in the field by silviculturists were documented, and the appropriate resource specialist(s) was conducted. Information included in the Resource Opportunities and Constraints was used to develop the "Quick List" resource summary discussed elsewhere in the report.

Prescriptions for Port Houghton timber units for compliance with TLMP Riparian Standards and Guidelines (1997, section 4-53) and the Soil and Conservation Handbook Best Management Practices (October, 1996).

### **Class I and II Streams**

The Riparian Management Area (RMA) for Class I and II streams includes the mandated TTRA 100-foot buffer requirement and an additional distance determined by the process group. Manage an appropriate distance beyond the RMA to provide for a reasonable assurance of windfirmness (pay special attention to the area within one site-potential tree height of the RMA). The area between the TTRA 100-foot buffer and the outer edge of



the RMA is an area of no programmed commercial timber harvest. Commercial timber harvest could be allowed within the RMA where it meets the objectives of the process group as determined for the project after completion of a watershed analysis (TLMP Riparian S&G p. 4-53-57). Apply BMPs 12.6, 12.6a and 13.16.

### **Class III Streams**

No programmed commercial harvest within the Riparian Management Area (RMA), defined as the area between the V-notch side-slope breaks (for HC channel types). The RMA description will vary by process group. The RMA distance will vary by individual channel types. Commercial timber harvest could be allowed within the RMA where it meets the objectives of the process group as determined for the project after completion of a watershed analysis (TLMP Riparian S&G p. 4-53-57).

Trees shall be felled in such a manner so that the direction of fall is away from stream courses. Trees or products shall not be hauled or yarded across stream courses unless fully suspended. Debris in stream courses resulting from falling or yarding Included Timber shall be removed immediately to a designated location. Manage an appropriate distance beyond the RMA to provide for a reasonable assurance of windfirmness (pay special attention to the area within one site-potential tree height of the slope-break). Apply BMP 13.16.

### **Class IV Streams**

In so far as practical, trees will be felled to lead for yarding away from stream courses. Trees that cannot be felled away from stream courses will be felled to bridge the stream providing these trees will be yarded during the same operating season. Debris in stream courses resulting from timber harvesting will be removed to a designated location before the yarder leaves the unit or upon completion of seasonal logging activities in the unit, whichever comes first. Apply BMP 13.16.

RMA default distances are listed in Table 1. These values can be overridden by site specific information.

Windfirm zone distances are also listed in Table 1. Commercial timber harvest is allowable in the windfirm zone. See Section RIP2 IIIB of TLMP Riparian Standards and Guidelines, p. 4-56.

**Integrated Resource Objectives** described for each stand reflect and are consistent with Resource Standards and Guidelines from the Tongass Land Management Plan (TLMP) as Revised. The unit-specific resource opportunities and constraints are put in context of the TLMP by listing of feasible integrated resource objectives that will be achieved by the silvicultural prescription.



**Table 1. Riparian Management Area (RMA) and Windfirm Management Zones for Channel Types**

Channel Type	Stream Class	1/2 Bankfull (BFW) Width (ft)	Horizontal Projection of Sideslope (SP) length**/floodplain (FP)* (ft)	RMA (ft) (No harvest zone) = 1/2BFW + (SSorFP) or 100ft	Windfirm Zone (ft) (from TLMP S&G) Site potential tree height (ft)	TLMP (ft) (= RMA + windfirm zone)	TTRA (ft) no harvest zone (= 1/2BFW + 100ft)
AF0	1	1.5	10	101.5	140	241.5	101.5
AF0	2-d	1.5	10	101.5	140	241.5	101.5
AF0	2-nd	1.5	10	11.5	140	151.5	0
AF0	3	1.5	10	11.5	140	151.5	0
AF0	4	1.5	10	0	0	0	0
AF1	1	10.5	140***	150.5	140	290.5	110.5
AF1	2-d	10.5	140	150.5	140	290.5	110.5
AF1	2-nd	10.5	140	150.5	140	290.5	0
AF1	3	10.5	140	150.5	140	290.5	0
AF1	4	1.5	10	0	0	0	0
AF2	1	6.5	140	146.5	140	286.5	106.5
AF2	2-d	6.5	140	146.5	140	286.5	106.5
AF2	2-nd	6.5	140	146.5	140	286.5	0
AF2	3	6.5	140	146.5	140	286.5	0
AF2	4	1.5	10	0	0	0	0
AF8	1	25	140	165	140	305	125
AF8	2-d	25	140	165	140	305	125
AF8	2-nd	25	140	165	140	305	0
AF8	3	25	140	165	140	305	0
AF8	4	1.5	10	0	0	0	0
ES1	1	13.5	124***	137.5	124	261.5	113.5
ES1	2	13.5	124	137.5	124	261.5	113.5
ES2	1	16.5	124	140.5	124	264.5	116.5
ES2	2	16.5	124	140.5	124	264.5	116.5
ES3	1	16.5	124	140.5	124	264.5	116.5
ES3	2	16.5	124	140.5	124	264.5	116.5
ES4	1	37.7	124	161.7	124	285.7	137.7
ES4	2	37.7	124	161.7	124	285.7	137.7
ES8	1	107.5	124	231.5	124	355.5	207.5
ES8	2	107.5	124	231.5	124	355.5	207.5
FP0	1	1.5	15	101.5	130	231.5	101.5
FP0	2-d	1.5	15	101.5	130	231.5	101.5
FP0	2-nd	1.5	15	101.5	130	231.5	0
FP0	3	1.5	15	16.5	130	146.5	0
FP0	4	1.5	15	0	0	0	0



Table 1. Riparian Management Area (RMA) and Windfirm Management Zones for Channel Types

Channel Type	Stream Class	1/2 Bankfull (BFW) Width (ft)	Horizontal Projection of Sideslope (SP) length**/floodplain (FP)* (ft)	RMA (ft) (No harvest zone) = 1/2BFW + (SSorFP) or 100ft	Windfirm Zone (ft) (from TLMP S&G) Site potential tree height (ft)	TLMP (ft) (= RMA + windfirm zone)	TTRA (ft) no harvest zone (= 1/2BFW + 100ft)
FP1	1	28.5	130***	158.5	130	288.5	128.5
FP1	2-d	28.5	130	158.5	130	288.5	128.5
FP1	2-nd	28.5	130	158.5	130	288.5	0
FP1	3	28.5	130	158.5	130	288.5	0
FP2	1	30	130	160	130	290	130
FP2	2-d	30	130	160	130	290	130
FP2	2-nd	30	130	160	130	290	0
FP2	3	30	130	160	130	290	0
FP3	1	10	155*	165	130	295	110
FP3	2-d	10	155	165	130	295	110
FP3	2-nd	10	155	165	130	295	0
FP3	3	10	155	165	130	295	0
FP4	1	25	170*	195	130	325	125
FP4	2-d	25	170	195	130	325	125
FP4	2-nd	25	170	195	130	325	0
FP4	3	25	170	195	130	325	0
FP5	1	54	283*	337	130	467	154
FP5	2-d	54	283	337	130	467	154
FP5	2-nd	54	283	337	130	467	0
FP5	3	54	283	337	130	467	0
FS0	1	1.5	10	101.5	120	221.5	101.5
FS0	2-d	1.5	10	101.5	120	221.5	101.5
FS0	2-nd	1.5	10	11.5	120	131.5	0
FS0	3	1.5	10	11.5	120	131.5	0
FS0	4	1.5	10	0	0	0	0
GO1	1	43	124***	167	124	291	143
GO1	2	43	124	167	124	291	143
GO2	1	70	124	194	124	318	170
GO2	2	70	124	194	124	318	170
GO3	1	107.5	124	231.5	124	355.5	207.5
GO3	2	107.5	124	231.5	124	355.5	207.5
GO4	1	51.5	124	175.5	124	299.5	151.5
GO4	2	51.5	124	175.5	124	299.5	151.5
GO5	1	21.5	55***	121.5	55	176.5	121.5
GO5	2-d	21.5	55	121.5	55	176.5	121.5



Table 1. Riparian Management Area (RMA) and Windfirm Management Zones for Channel Types

Channel Type	Stream Class	1/2 Bankfull (BFW) Width (ft)	Horizontal Projection of Sideslope (SP) length ** / floodplain (FP) * (ft)	RMA (ft) (No harvest zone) = 1/2BFW + (SSorFP) or 100ft	Windfirm Zone (ft) (from TLMP S&G) Site potential tree height (ft)	TLMP (ft) (= RMA + windfirm zone)	TTRA (ft) no harvest zone (= 1/2BFW + 100ft)
GO5	2-nd	21.5	55	76.5	55	131.5	0
GO5	3	21.5	55	76.5	55	131.5	0
HC6	1	1.5	15	101.5	120	221.5	101.5
HC6	2-d	1.5	15	101.5	120	221.5	101.5
HC6	2-nd	1.5	15	16.5	120	136.5	0
HC6	3	1.5	15	16.5	120	136.5	0
HC6	4	1.5	15	0	0	0	0
HC1	1	6.5	24	106.5	120	226.5	106.5
HC1	2-d	6.5	24	106.5	120	226.5	106.5
HC1	2-nd	6.5	24	106.5	120	226.5	0
HC1	3	6.5	24	30.5	120	150.5	0
HC1	4	1.5	15	0	0	0	0
HC2	1	8.5	32	108.5	120	228.5	108.5
HC2	2-d	8.5	32	108.5	120	228.5	108.5
HC2	2-nd	8.5	32	108.5	120	228.5	0
HC2	3	8.5	32	40.5	120	160.5	0
HC2	4	1.5	15	0	0	0	0
HC4	1	11.5	58	111.5	120	231.5	111.5
HC4	2-d	11.5	58	111.5	120	231.5	111.5
HC4	2-nd	11.5	58	111.5	120	231.5	0
HC4	3	11.5	58	69.5	120	189.5	0
HC4	4	1.5	15	0	0	0	0
HC4	1	9	20	109	120	229	109
HC1	2-d	9	20	109	120	229	109
HC1	2-nd	9	20	109	120	229	0
HC4	3	9	20	29	120	149	0
HC4	4	1.5	15	0	0	0	0
HC5	1	6.5	23	106.5	120	226.5	106.5
HC5	2-d	6.5	23	106.5	120	226.5	106.5
HC5	2-nd	6.5	23	106.5	120	226.5	0
HC5	3	6.5	23	29.5	120	149.5	0
HC5	4	1.5	15	0	0	0	0
HC6	1	10	33	110	120	230	110
HC6	2-d	10	33	110	120	230	110
HC6	2-nd	10	33	110	120	230	0
HC6	3	10	33	43	120	163	0



Table 1. Riparian Management Area (RMA) and Windfirm Management Zones for Channel Types

Channel Type	Stream Class	1/2 Bankfull (BFW) Width (ft)	Horizontal Projection of Sideslope (SP) length**/floodplain (FP)* (ft)	RMA (ft) (No harvest zone) =1/2BFW + (SSorFP) or 100ft	Windfirm Zone (ft) (from TLMP S&G) Site potential tree height (ft)	TLMP (ft) (= RMA + windfirm zone)	TTRA (ft) no harvest zone (=1/2BFW + 100ft)
HC6	4	1.5	15	0	0	0	0
HC8	1	32	69	132	120	252	132
HC8	2-d	32	69	132	120	252	132
HC8	2-nd	32	69	132	120	252	0
HC8	3	32	69	101	120	221	0
HC8	4	1.5	15	0	0	0	0
HC9	1	28	55	128	120	248	128
HC9	2-d	28	55	128	120	248	128
HC9	2-nd	28	55	128	120	248	0
HC9	3	28	55	83	120	203	0
HC9	4	1.5	15	0	0	0	0
LC1	1	27	101	128	100	228	127
LC1	2-d	27	101	128	100	228	127
LC1	2-nd	27	101	128	100	228	0
LC1	3	27	101	128	100	228	0
LC2	1	30	101	131	100	231	130
LC2	2-d	30	101	131	100	231	130
LC2	2-nd	30	101	131	100	231	0
LC2	3	30	101	131	100	231	0
MC0	1	1.5	10	101.5	100	201.5	101.5
MC0	2-d	1.5	10	101.5	100	201.5	101.5
MC0	2-nd	1.5	10	11.5	100	111.5	0
MC0	3	1.5	10	11.5	100	111.5	0
MC0	4	1.5	10	0	0	0	0
MC1	1	9	41	109	100	209	109
MC1	2-d	9	41	109	100	209	109
MC1	2-nd	9	41	109	100	209	0
MC1	3	9	41	50	100	150	0
MC1	4	1.5	10	0	0	0	0
MC2	1	15	30	115	100	215	115
MC2	2-d	15	30	115	100	215	115
MC2	2-nd	15	30	115	100	215	0
MC2	3	15	30	45	100	145	0
MC3	1	16	51	116	100	216	116



Table 1. Riparian Management Area (RMA) and Windfirm Management Zones for Channel Types

Channel Type	Stream Class	1/2 Bankfull (BFW)Width (ft)	Horizontal Projection of Sideslope (SP) length**/floodplain (FP)* (ft)	RMA (ft) (No harvest zone) =1/2BFW + (SSorFP) or 100ft	Windfirm Zone (ft) (fromTLMP S&G) Site potential tree height (ft)	TLMP (ft) (= RMA + windfirm zone)	TTRA (ft) no harvest zone (=1/2BFW + 100ft)
MC3	2-d	16	51	116	100	216	116
MC3	2-nd	16	51	67	100	167	0
MC3	3	16	51	67	100	167	0
MM0	1	1.5	10	101.5	120	221.5	101.5
MM0	2-d	1.5	10	101.5	120	221.5	101.5
MM0	2-nd	1.5	10	11.5	120	131.5	0
MM0	3	1.5	10	11.5	120	131.5	0
MM0	4	1.5	10	0	0	0	0
MM1	1	8.5	45	128.5	120	248.5	108.5
MM1	2-d	8.5	45	128.5	120	248.5	108.5
MM1	2-nd	8.5	45	128.5	120	248.5	0
MM1	3	8.5	45	53.5	120	173.5	0
MM1	4	1.5	10	0	0	0	0
MM2	1	23	45	143	120	263	123
MM2	2-d	23	45	143	120	263	123
MM2	2-nd	23	45	143	120	263	0
MM2	3	23	45	68	120	188	0
MM1 Sideslope length value from User Guide was judged not appropriate for planning purposes, MM2 sideslope value used for MM1 also.							
PA0	1	1.5	85***	101.5	85	186.5	101.5
PA0	2-d	1.5	85	101.5	85	186.5	101.5
PA0	2-nd	1.5	85	86.5	85	171.5	0
PA0	3	1.5	85	86.5	85	171.5	0
PA0	4	1.5	85	86.5	0	86.5	0
PA1	1	7.5	85	107.5	85	192.5	107.5
PA1	2-d	7.5	85	107.5	85	192.5	107.5
PA1	2-nd	7.5	85	92.5	85	177.5	0
PA1	3	7.5	85	92.5	85	177.5	0
PA1	4	1.5	85	0	0	0	0
PA2	1	30	85	130	85	215	130
PA2	2-d	30	85	130	85	215	130
PA2	2-nd	30	85	115	85	200	0
PA2	3	30	85	115	85	200	0
PA3	1	20	85	120	85	205	120
PA3	2-d	20	85	120	85	205	120
PA3	2-nd	20	85	105	85	190	0



**Table 1. Riparian Management Area (RMA) and Windfirm Management Zones for Channel Types**

Channel Type	Stream Class	1/2 Bankfull (BFW) Width (ft)	Horizontal Projection of Sideslope (SP) length ** / floodplain (FP) * (ft)	RMA (ft) (No harvest zone) = 1/2BFW + (SSorFP) or 100R	Windfirm Zone (ft) (from TLMP S&G) Site potential tree height (ft)	TLMP (ft) (= RMA + windfirm zone)	TTRA (ft) no harvest zone (= 1/2BFW + 100ft)
PA3	3	20	85	105	85	190	0
PA4	1	50	85	150	85	235	150
PA4	2-d	50	85	150	85	235	150
PA4	2-nd	50	85	135	85	220	0
PA4	3	50	85	135	85	220	0
PA5	1	16.5	85	116.5	85	201.5	116.5
PA5	2-d	16.5	85	116.5	85	201.5	116.5
PA5	2-nd	16.5	85	101.5	85	186.5	0
PA5	3	16.5	85	101.5	85	186.5	0

\* FP and LC floodplain width values taken from Game Creek and Indian River watershed analysis - (mean riparian width values).

\*\* Horizontal projection of Sideslope length calculated by (cos mean sideslope angle x mean sideslope length), values from the Channel Type User Guide.

\*\*\* For AF, ES, GO and PA; CT, SS/FP = one site potential tree height. [AF=140, FP1=130, FP2=130, and PA's]-TLMP S&G's, [ES=124 and GO=124]-mean tree height of Sitka Spruce PA.

[GO5=55]-mean tree height of Western Hemlock PA.

\*\*\*\*For HC8 calculated Sideslope length from Incision depth x sin sideslope angle, then used (cos a)c = horizontal distance.

Site potential tree height values taken from TLMP S&G's. Substitute site specific tree heights if available for timber unit.

2-d : Stream Class II, flowing directly into Class I anadromous fish stream.

2-nd : Stream Class II, NOT flowing directly into Class I anadromous fish stream.

1/2 Bankfull width based on Channel Type User Guide mean bankfull widths.



**Rationale for Silvicultural Treatment** discusses reasons for selection of the recommended silvicultural option. Relative advantages of the recommended alternative are described and compared with other options.

**Integrated Management Prescription** incorporates a broad range of considerations, including:

- A. **Description of Unit Boundary Determination**
- B. **Timber Marking Rules** that give specific direction for sale layout. The rules include guidance on leave tree specification, species considerations, and other operational details.
- C. **Logging Systems** for the unit gives a summary of the forest engineering considerations. Details on logging systems are included in a separate report.
- D. **Soil, Water, and Wildlife Conservation** describes the actions recommended for protection of these resource values. Best Management Practices (BMP's) from the TLMP are included where applicable.
- E. **Regeneration Method** describes the techniques recommended for establishing the new stand in areas where regeneration harvest is prescribed.
- F. **Forest Productivity Activities** include those actions or effects that are expected to maintain or increase the productivity of the site. In some cases, this may include cultural treatments such as planting or thinning, but ecological effects are also discussed.
- G. **Expected Future Stand Conditions** describes a sequence of anticipated stand development over the course of the next rotation. Major conditions and potential silvicultural activities include (1) regeneration of the new stand, (2) precommercial thinning ("intermediate harvest[s]"), and final harvest ("rotation"). Because of future uncertainty, a range of ages is given for planned actions.

**Monitoring Plan** includes the activities that may be needed to ensure that silvicultural activities are carried out on time and within acceptable standards. Monitoring is an integral part of the adaptive management approach used throughout this project. The Silvicultural Prescription Monitoring Plan does not include monitoring of other resource values and conditions, such as wildlife or water quality. No attempt was made to specify monitoring beyond the early development of the new stand. Though the same monitoring may be specified on all units, such efforts may be done on sample basis for cost effectiveness.

It has to be anticipated that there will be some minor changes to the units as depicted on these descriptions. It is virtually impossible, without final field layout of every unit boundary and road, to not have some changes. Exact conformance to preset lines, regardless of values, would not be proper management. Opportunities to not only protect newly discovered situations but also to optimize management intent without changing the environmental impacts have to be anticipated and instituted. The resources, as they are now known and analyzed, have been protected or enhanced to the greatest extent practicable.

If changes and impacts develop which are outside the scope of the impacts envisioned with this EIS, additional documentation may be required.



In the review of the unit descriptions, specific mitigation measures are shown and these should be self-explanatory. A few items that may require clarification are described below:

Suspension/Logging Requirements:

- Full: Logs have to be fully suspended when yarded. Achieved with helicopter yarding with cable logging under certain topographic conditions.
- Partial: Only one end of the log touches the ground while being yarded. Normally attainable with cable yarding systems with adequate deflection and the location of proper tailholds.
- Cable: Describes high-lead or other similar type equipment. No suspension requirements specified.
- No system listed: Can be yarded with cable or with "shovel" (log loader is used to yard logs).



Alternative 2 Timber Statistics

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
80	381131						33.9	582.5	17,202
	381133						43.0	743.6	17,292
	381135						20.0	518.2	25,924
	381136						26.0	642.9	24,769
	381138						16.2	271.0	16,729
	381139						28.4	519.1	18,304
	381140						74.4	1,944.5	26,145
80	381199						25.0	616.0	24,648
	Road r/w						-	-	-
80 Total							276.9	266.7	5,837.6
81	311140						2.9	57.5	1,040.6
	311141A					54.6	1.7	5.9	84.5
	311141B					7.8		7.8	179.9
	311141C					11.1		11.1	218.7
	311142		22.9					42.0	1,177.0
	311144					24.3		68.4	1,980.3
	311145							46.4	640.6
	311146					80.3		83.9	1,330.9
	311199							52.6	737.2
	312143E						20.3	20.3	516.7
	312143W						12.0	12.0	306.7
	Road r/w						31.3	432.8	13,813
81 Total			22.9			182.1	83.3	439.1	8,645.7
82	321008				20.2			20.2	711.3
	321009E							17.0	504.9
	321009W	7.1			10.3			17.4	443.8
	321011	9.0						9.0	242.2
	321012							71.0	2,136.8
	321013						25.9	25.9	555.3
	321016				16.5	35.5		52.0	1,373.6
	321017							49.8	1,624.4
	321018	2.7	23.2					25.9	648.6
									25,030



Alternative 2 Timber Statistics (continued)

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
	321019				82.3		82.3	2,052.9	24.946
	321022					34.1	34.1	785.4	23.040
	321023				72.8		72.8	2,179.1	29.931
	321024				80.5		80.5	1,839.8	22.859
	321025	2.5	13.2		21.9	10.6	92.8	2,735.8	29.492
	321026						65.9	1,979.1	30.011
	321027			3.6		12.6	15.2	2,038.6	31.369
	321028E				19.5		19.5	321.1	16.457
	321028W				24.5		24.5	656.9	26.780
	321029		30.3		12.4		60.1	1,931.7	32.167
	321030					21.9	87.8	1,451.4	16.527
	321197						46.7	631.3	13.515
	321199				36.3		36.3	1,236.7	34.103
	322032				22.1		22.1	853.2	38.570
	322033						35.4	977.6	27.628
	322034					53.7	53.7	1,957.4	36.445
	322035						31.9	756.5	23.696
	322036					15.8	15.8	562.3	35.692
	322037				28.9		43.8	886.6	20.220
	322039	5.1	12.1		9.7		26.9	785.0	29.200
	322040				52.2		52.2	1,210.2	23.173
	322041				59.4	19.7	79.2	2,808.1	35.477
	322042						50.3	1,309.1	26.049
	322043						24.1	854.9	35.536
	322044				58.6		58.6	2,214.5	37.821
	Road r/w						78.0	1,498.5	19.221
<b>82 Total</b>		<b>26.3</b>	<b>134.6</b>	<b>3.6</b>	<b>628.1</b>	<b>203.9</b>	<b>1,628.3</b>	<b>44,754.3</b>	<b>27.486</b>
<b>83</b>	331045N						27.3	931.4	34.115
	331045S						26.5	896.8	33.894
	331046						31.5	733.1	23.293
	331047				44.3		44.3	1,325.6	29.895
	331049					61.4	61.4	1,824.1	29.696
	331187						17.4	263.7	15.166



## Alternative 2 Timber Statistics (continued)

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
	331188C						27.0	728.7	26.995
	331188H					2.4	2.4	59.2	24.192
	332050						4.5	110.8	24.728
	332056E						25.2	484.0	19.197
	332056W						6.4	169.0	26.416
	332059					29.3	29.3	758.7	25.870
	332067				33.9		33.9	724.0	21.330
	332068						37.2	779.5	20.931
	332069					44.1	44.1	507.6	11.510
	332070				29.1		29.1	977.4	33.569
	332071					29.5	41.3	609.6	14.768
	332073					77.3	77.3	2,686.7	34.747
	332074		19.4		14.0		33.4	618.3	18.522
	333081						74.5	1,026.2	13.769
	333083W				36.8	25.7	62.6	1,567.1	25.053
	333084X						34.2	858.3	25.083
	333084Y						12.9	323.8	25.091
	333084Z					8.5	8.5	211.9	25.068
	333085				33.9	29.2	72.9	2,026.1	27.793
	333086					20.3	20.3	765.8	37.800
	Road r/w						81.1	1,421.6	17.539
<b>83 Total</b>			<b>19.4</b>		<b>192.2</b>	<b>325.3</b>	<b>67.0</b>	<b>23,389.0</b>	<b>24.200</b>

<b>86</b>	261						305.0	Combined w/89	-
	26102		73.9				73.9	1,936.0	26.188
	26103	1.6			43.5		45.1	730.6	16.203
	Road r/w						7.0	Combined w/89	-
<b>86 Total</b>		<b>1.6</b>	<b>54.7</b>		<b>57.7</b>	<b>3.2</b>	<b>188.3</b>	<b>2,666.6</b>	<b>6.186</b>

<b>87</b>	271						281.5	Combined w/89	
	27102	32.4		12.6			45.0	1,676.5	37.223
	27105				47.5		47.5	1,150.6	24.227
	27107						108.9	2,088.7	19.188
	27108				62.7	8.1	70.8	1,167.9	16.502



## Port Houghton/Cape Fanshaw EIS

A-26<sup>b</sup> Without road ROW.



Alternative 3 Timber Statistics

VCU	UNIT	Shovel	Ground	Logging System Acres				Helicopter	Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
				Highlead	Slackline	Small Slackline	Running Skyline				
80	381131	-	-					33.9	33.9	582	17.202
	381133	-	-					43.0	43.0	744	17.292
	381135	-	-					20.0	20.0	518	25.924
	381136	-	-					26.0	26.0	643	24.769
	381138	-	-					16.2	16.2	271	16.729
	381139	-	-					28.4	28.4	519	18.304
	381140	-	-					74.4	74.4	1,944	26.145
	381199	-	-					25.0	25.0	616	24.648
Road r/w		-	-					-	-	-	-
80 Total		-	-	-	-	-	-	266.7	266.7	5,837.6	21.886
81	311144	-	-					68.4	68.4	1,980	28.936
	311145	-	-					46.4	46.4	641	13.813
	311146	-	-					83.9	83.9	1,331	15.854
	311199	-	-					52.6	52.6	737	14.027
	312143E	-	-					20.3	20.3	517	25.510
	312143W	-	-					12.0	12.0	307	25.639
Road r/w		-	-					-	-	-	-
81 Total		-	-	-	-	-	-	283.5	283.5	5,512.3	19.442
Alt 3 Grand Totals:		-	-	-	-	-	-	550.3	550.3	11,350.0	20.627



Alternative 4 Timber Statistics

VCU	UNIT	Logging System Acres				Running Skyline	Helicopter	Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline				
80	381131						33.9	33.9	582	17.202
	381133						43.0	43.0	744	17.292
	381135						20.0	20.0	518	25.924
	381136						26.0	26.0	643	24.769
	381138						16.2	16.2	271	16.729
	381139						28.4	28.4	519	18.304
	381140						74.4	74.4	1,944	26.145
	381199						25.0	25.0	616	24.648
Road r/w							-	-	-	-
80 Total							276.9	266.7	5,837.6	21.886
81	311140					54.6	2.9	57.5	1,041	18.103
	311141A					4.2	1.7	5.9	84	14.206
	311141B					7.8		7.8	180	23.189
	311141C					11.1		11.1	219	19.769
	311142		22.9					42.0	1,177	28.003
	311144						68.4	68.4	1,980	28.936
	311145						46.4	46.4	641	13.813
	311146						83.9	83.9	1,331	15.854
	311199						52.6	52.6	737	14.027
	312143E						20.3	20.3	517	25.510
	312143W						12.0	12.0	307	25.639
	Road r/w						12.1	12.1	164	13.552
81 Total			22.9			77.6	278.0	419.9	8,376.5	19.950
82	321						59.4	59.4	248	4.173
	321004			7.5				7.5	102	13.466
	321006						10.1	38.5	922	23.945
	321007						25.2	41.0	623	15.196
	321008							20.2	711	35.175
	321009E							17.0	505	29.713
	321009W	7.1			10.3			17.4	444	25.509
	321010							28.9	563	19.470
	321011	9.0						9.0	242	26.952



Alternative 4 Timber Statistics (continued)

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
	321012						71.0	2,137	30.103
	321013						25.9	555	21.435
	321016				16.5	35.5		1,374	26.407
	321017						49.8	1,624	32.621
	321018	2.7	23.2				25.9	649	25.030
	321019				82.3		82.3	2,053	24.946
	321022					34.1	34.1	785	23.040
	321023				72.8		72.8	2,179	29.931
	321024				80.5		80.5	1,840	22.859
	321025		13.2		21.9	10.6	92.8	2,736	29.492
	321026	2.5					65.9	1,979	30.011
	321027		33.6	3.6		12.6	65.0	2,039	31.369
	321028E				19.5		19.5	321	16.457
	321028W				24.5		24.5	657	26.780
	321029		30.3		12.4		60.1	1,932	32.167
	321030					21.9	87.8	1,451	16.527
	321197						46.7	631	13.515
	321199				36.3		36.3	1,237	34.103
	322						96.9	322	3.326
	322031						40.7	1,009	24.804
	322032				22.1		22.1	853	38.570
	322033						35.4	978	27.628
	322034					53.7	53.7	1,957	36.445
	322035						31.9	756	23.696
	322036					15.8	15.8	562	35.692
	322037				28.9		43.8	887	20.220
	322039				9.7		26.9	785	29.200
	322040		12.1		52.2		52.2	1,210	23.173
	322041				59.4	19.7	79.2	2,808	35.477
	322042	5.1					50.3	1,309	26.049
	322043						24.1	855	35.536
	322044				58.6		58.6	2,214	37.821
	Road r/w						81.2	1,677	20.659
82 Total		26.3	134.6	11.2	607.9	203.9	1,944.4	48,721.5	25,057



Alternative 4 Timber Statistics (continued)

VCU	UNIT	Shovel	Ground	Highlead	Logging System Acres				Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
					Slackline	Small Slackline	Running Skyline	Helicopter			
83	331							36.3	36.3	146	4,016
	331045N						27.3		27.3	931	34,115
	331045S						26.5		26.5	897	33,894
	331046						31.5		31.5	733	23,293
	331047								44.3	1,326	29,895
	331049				44.3				61.4	1,824	29,696
	331187					61.4		17.4	17.4	264	15,166
	331188C						27.0		27.0	729	26,995
	331188H							2.4	2.4	59	24,192
	332							48.6	48.6	161	3,314
	332050						4.5		4.5	111	24,728
	332051						12.6		12.6	161	12,790
	332052						12.6		12.6	261	20,655
	332053					13.3			13.3	291	21,841
	332054					28.2			28.2	415	14,708
	332055						19.3		19.3	212	10,990
	332056E						25.2		25.2	484	19,197
	332056W						6.4		6.4	169	26,416
	332057				8.6	7.6			16.2	392	24,201
	332058				13.7		15.2		28.9	274	9,482
	332059					29.3			29.3	759	25,870
	332067				33.9				33.9	724	21,330
	332068						37.2		37.2	780	20,931
	332069					44.1			44.1	508	11,510
	332070				29.1				29.1	977	33,569
	332071					29.5	11.8		41.3	610	14,768
	332072		60.3				6.6		66.9	1,924	28,771
	332073					77.3			77.3	2,687	34,747
	332074		19.4		14.0				33.4	618	18,522
	333078						28.0		28.0	425	15,196
	333081						74.5		74.5	1,026	13,769
	333083W				36.8	25.7			62.6	1,567	25,053
	333084X							34.2	34.2	858	25,083
	333084Y							12.9	12.9	324	25,091



Alternative 4 Timber Statistics (continued)

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
	333084Z				8.5		8.5	212	25.068
	333085				33.9	29.2	9.8	2,026	27.793
	333086					20.3		766	37.800
	333093					37.7	7.8	636	11.893
	Road r/w						7.9	1,669	17.232
<b>83 Total</b>		<b>79.7</b>			<b>214.4</b>	<b>412.2</b>	<b>388.4</b>	<b>28,934.0</b>	<b>21.485</b>
	84 Road r/w							25.1	12.106
<b>84 Total</b>					<b>5.0</b>	<b>23.4</b>	<b>2.1</b>	<b>25.1</b>	<b>12.106</b>
	86 261							Combined w/291	-
	26102		73.9				305.0	1,936	26.188
	26103	1.6			43.5		45.1	731	16.203
	Road r/w						6.5	Combined w/291	-
<b>86 Total</b>		<b>1.6</b>	<b>51.6</b>		<b>60.8</b>	<b>191.4</b>	<b>430.5</b>	<b>2,666.6</b>	<b>6.194</b>
	87 271							Combined w/291	-
	27102	32.4		12.6			281.5	1,676	37.223
	27105				47.5		45.0	1,151	24.227
	27107						47.5	2,089	19.188
	27108					70.8	108.9	1,168	16.502
	27109					51.8	70.8	1,185	22.869
	27110					23.7	31.7	710	12.811
	27113					39.2	39.2	1,255	31.992
	Road r/w						15.6	Combined w/291	-
<b>87 Total</b>		<b>32.4</b>		<b>12.6</b>	<b>115.2</b>	<b>139.9</b>	<b>535.7</b>	<b>9,233.2</b>	<b>12.900</b>
	89 291 <sup>a</sup>							6,333	9.522
	29101						78.5	451	31.802
	29102				22.4		14.2	485	21.604
	29103		40.5				22.4	759	18.756
	29104					33.9	40.5	780	22.999
	29105					26.7	33.9	680	25.431
	29106		21.8		13.2	58.4	26.7	2,193	23.490



Alternative 4 Timber Statistics (continued)

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
	29107				63.2		63.2	1,397	22.097
	29111							604	21.739
	29112				32.7	28.2	12.3	15.5	19,414
	29113				71.4		5.6		18,927
	29117				14.7	21.0			13,423
	29119				23.0	43.5	19.2		25,038
	29120					34.3		32.1	19,338
	29121				44.5		16.8		22,101
	29122							94.0	33,786
	29123						27.0		17,580
	29125							49.9	12,177
	29126				41.0		45.6		24,951
	29127N						46.6		17,996
	29127S						60.0		17,669
	29130				64.5	23.4			18,810
	29198						28.6		32,853
	33301					35.5	9.0		20,097
	Road r/w								
	89 Total		62.3		440.6	187.1	298.1	247.1	25,189
	Alt 4 Grand Totals:	60.4	351.1	23.8	1,383.1	1,104.9	1,217.2	2,163.5	21,304
								6,224.5 <sup>b</sup>	

<sup>a</sup> Total MBF and MBF/acre are combined for units 261, 271 and 291.

<sup>b</sup> Without road ROW.



VCU	UNIT	Shovel	Ground	Highlead	Logging System Acres			Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
					Slackline	Small Slackline	Running Skyline			
80	381131							33.9	33.9	582
	381133							43.0	43.0	744
	381135							20.0	20.0	518
	381136							26.0	26.0	643
	381138							16.2	16.2	271
	381139							28.4	28.4	519
	381140							74.4	74.4	1,944
	381199							25.0	25.0	616
Road r/w										
80 Total		-	-	-	-	-	-	266.7	266.7	5,837.6
81	311140									
	311141A					54.6		2.9	57.5	1,041
	311141B					4.2		1.7	5.9	84
	311141C					7.8			7.8	180
	311142		22.9			11.1			11.1	219
	311144						19.2		42.0	1,177
	311145					24.3	44.2		68.4	1,980
	311146						20.0		46.4	641
	311199					80.3			83.9	1,331
	312143E							52.6	52.6	737
	312143W							20.3	20.3	517
	Road r/w							12.0	12.0	307
81 Total		-	22.9	-	-	182.1	83.3	119.5	438.3	8,634.2
82	321018	2.7	23.2						25.9	649
	321024				80.5				80.5	1,840
	321025	2.5	13.2		21.9		17.5	27.0	92.8	2,736
	321026						65.9		65.9	1,979
	321027		33.6	3.6		12.6		15.2	65.0	2,039
	321028E				19.5				19.5	321
	321028W				24.5				24.5	657
	321029		30.3		12.4		17.4		60.1	1,932
	321030					21.9	36.7	29.2	87.8	1,451



Alternative 5 Timber Statistics (continued)

VCU	UNIT	Shovel	Ground	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
				Highlead	Slackline	Small Slackline	Running Skyline	Helicopter			
82 Total	321197							46.7	46.7	631	13.515
	322039	5.1	12.1		9.7				26.9	785	29.200
	322040				52.2				52.2	1,210	23.173
	Road r/w								29.6	409	13.822
		10.2	112.3	3.6	220.7	45.1	137.6	118.2	677.4	16,638.6	24.561
83	332050										
	332056E						4.5		4.5	111	24.728
	332056W						25.2		25.2	484	19.197
	333081						6.4		6.4	169	26.416
							74.5		74.5	1,026	13.769
	333083W				36.8	25.7			62.6	1,567	25.053
	333084X					34.2			34.2	858	25.083
	333084Y					12.9			12.9	324	25.091
	333084Z					8.5			8.5	212	25.068
	333085				33.9	29.2	9.8		72.9	2,026	27.793
	333086					20.3			20.3	766	37.800
	Road r/w								41.3	624	15.119
83 Total		-	-	-	70.8	130.7	120.4	-	363.2	8,167.0	22.487
86	261							305.0	305.0	Combined w/291	-
	26102		73.9						73.9	1,936	26.188
	26103	1.6			43.5				45.1	731	16.203
	Road r/w								14.2	Combined w/291	-
		1.6	73.9	-	-	43.5	-	305.0	438.2	2,666.6	6.085
87	271							281.5	281.5	Combined w/291	-
	27102	32.4		12.6					45.0	1,676	37.223
	27105				47.5				47.5	1,151	24.227
	27107							108.9	108.9	2,089	19.188
	27108					62.7	8.1		70.8	1,168	16.502
	27109					51.8			51.8	1,185	22.869
	27110		31.7			23.7			55.4	710	12.811
	27113				39.2				39.2	1,255	31.992
	Road r/w								16.1	Combined w/291	-
87 Total		32.4	31.7	12.6	86.7	138.2	8.1	390.4	716.3	9,233.2	12.891



Alternative 5 Timber Statistics (continued)

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
89	291 <sup>a</sup>						78.5	6,333	9,522
	29101							451	31,802
	29102					22.4	14.2	485	21,604
	29103		40.5					759	18,756
	29104				33.9			780	22,999
	29105				26.7			680	25,431
	29106		21.8		71.6			2,193	23,490
	29107				63.2			1,397	22,097
	29111						15.5	289	10,394
	29112				32.7	28.2	12.3	1,290	19,414
	29113				71.4		5.6	1,351	18,927
	29117				14.7	21.0		480	13,423
	29119				23.0	43.5	19.2	2,146	25,038
	29120					34.3		748	11,264
	29121				44.5		32.1	1,355	22,101
	29122						94.0	3,177	33,786
	29123						27.0	475	17,580
	29198						28.6	941	32,853
	Road r/w							1,168	22,701
89 Total			62.3	-	381.7	149.5	96.8	26,497.4	26,798
Alt 5 Grand Totals:		44.3	303.1	16.3	759.9	689.1	446.1	77,674.7	19,974
							3,705.7 <sup>b</sup>		

<sup>a</sup> Total MBF and MBF/acre are combined for units 261, 271 and 291.

<sup>b</sup> Without road ROW.



Alternative 6 Timber Statistics

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
83	331049			61.4			61.4	1,824	29,696
	332050				4.5		4.5	111	24,728
	332052				12.6		12.6	261	20,655
	332053			13.3			13.3	291	21,841
	332054			28.2			28.2	415	14,708
	332055				19.3		19.3	212	10,990
	332056E				25.2		25.2	484	19,197
	332056W				6.4		6.4	169	26,416
	332057		8.6	7.6			16.2	392	24,201
	332058		13.7		15.2		28.9	274	9,482
	332059			29.3			29.3	759	25,870
	332067		33.9				33.9	724	21,330
	332068				37.2		37.2	780	20,931
	332069			44.1			44.1	508	11,510
	332070		29.1				29.1	977	33,569
	332071			29.5	11.8		41.3	610	14,768
	332072	60.3			6.6		66.9	1,924	28,771
	332073			77.3			77.3	2,687	34,747
	332074	19.4	14.0				33.4	618	18,522
	333078				28.0		28.0	425	15,196
	333081				74.5		74.5	1,026	13,769
89	333083W		36.8	25.7			62.6	1,567	25,053
	333084X			34.2			34.2	858	25,083
	333084Y			12.9			12.9	324	25,091
	333084Z			8.5			8.5	212	25,068
	333085		33.9	29.2	9.8		72.9	2,026	27,793
	333086			20.3			20.3	766	37,800
	Road r/w						127.8	1,245	9,739
	83 Total	79.7	170.1	421.6	260.8		1,050.3	22,467.4	21,392
	89 29198				28.6		28.6	941	32,853
	Road r/w						0.3	-	-
	89 Total				19.0		28.9	940.5	32,568
Alt 6 Grand Totals:		79.7	170.1	421.6	279.8		1,079.1 <sup>a</sup>	23,407.9	21,691
							951		

<sup>a</sup> Without road ROW.



VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
82	321006						28.4	1,097.2	38.593
	321007						15.8	266.3	16.862
	321008						20.2	803.4	39.728
	321009E						17.0	554.8	32.651
	321009W	17.4					17.4	487.7	28.032
	321010						28.9	563.2	19.470
	321011	9.0					9.0	242.2	26.952
	321012						71.0	2,202.9	31.034
	321016				16.5	35.5	52.0	1,526.2	29.341
	321017						49.8	1,657.6	33.287
	321024				80.5		80.5	2,044.2	25.399
	321025	2.5	13.2		21.9	10.6	65.7	2,395.3	36.445
	321026		23.2				65.9	2,199.0	33.346
	321027		33.6	3.6		12.6	49.8	2,080.2	41.800
	321028E				19.5		19.5	321.1	16.457
	321028W				24.5		24.5	656.9	26.780
	321029		30.3		12.4		60.1	2,033.4	33.860
	321030					21.9	58.6	1,481.0	25.277
	321199				36.3		36.3	1,236.7	34.103
	322032				22.1		22.1	870.6	39.357
	322034					53.7	53.7	2,156.0	40.143
	322035						31.9	771.9	24.180
	322036					15.8	15.8	591.9	37.571
	322037						43.8	1,182.1	26.960
	322040				28.9		52.2	1,234.9	23.646
	322041				52.2		79.2	2,868.4	36.238
	322042				59.4	19.7	50.3	1,954.4	38.890
	322044				58.6		58.6	2,259.7	38.593
	Road r/w						64.4	1,310.4	20.351
82 Total		28	28.9	3.6	432.8	169.8	1,242.3	39,049.4	31.432
83	331045N						27.3	1,034.8	37.905
	331045S						26.5	996.4	37.660



Alternative 7 Timber Statistics (continued)

VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
						Running Skyline	Helicopter		
331046						31.5	-	31.5	814.5
331047					44.3		-	44.3	1,325.6
331048						58.8	-	58.8	2,395.0
331188C						27.0	-	27.0	809.6
332050						4.5	-	4.5	110.8
332053					13.3		-	13.3	323.5
332054					28.2		-	28.2	477.0
332055						19.3	-	19.3	235.6
332056E						25.2	-	25.2	484.0
332056W						6.4	-	6.4	169.0
332057					8.6	7.6	-	16.2	412.6
332058					13.7		-	13.7	322.5
332059						29.3	-	29.3	774.2
332067					33.9		-	33.9	804.5
332068							-	37.2	866.1
332069							-	44.1	564.0
332070					29.1		-	29.1	1,086.0
332071						29.5	-	41.3	609.6
332072			60.3				-	66.9	2,024.8
332073						77.3	-	77.3	2,686.7
332074			19.4		14.0		-	33.4	727.5
333078							-	28.0	16.884
333081							-	74.5	15.647
333083W					36.8	25.7	-	62.6	26.371
333084X						34.2	-	34.2	26.404
333084Y						12.9	-	12.9	26.412
333084Z						8.5	-	8.5	26.387
333085					33.9	29.2	-	72.9	2,132.7
333086						20.3	-	20.3	765.8
Road r/w							-	92.4	1,565
83 Total		-	79.7	-	214.4	418.9	-	1,166.2	29,273.8
		31.0				360.8			25,102



VCU	UNIT	Logging System Acres					Total Net Acres	Total Net Sawlog MBF + Utility	Average Volume MBF/Acre
		Shovel	Ground	Highlead	Slackline	Small Slackline			
86	26102								
	26103	1.6							
	Road r/w								
86 Total	2.0	1.6	-	-	-	117.4	130.4	2,981.4	22.864
87	27102	32.4		12.6					
	27105				47.5				
	27107					100.0			
	27108					62.7	8.1		
	27109					51.8			
	27110		31.7			23.7			
	27113				39.2				
	Road r/w								
87 Total	7.0	32.4	31.7	12.6	86.7	238.2	429.7	9,494.9	22.097
89	29101								
	29102					22.4	14.2	451.1	31.802
	29103		40.5				22.4	532.8	23.741
	29104						40.5	834.3	20.611
	29105				33.9		33.9	780.1	22.999
	29106		21.8		26.7		26.7	680.1	25.431
	29111				71.6		93.3	2,436.3	26.100
	29112						12.3	288.6	23.438
	29113				32.7	28.2	66.5	1,402.6	21.102
	29121				71.4		71.4	1,468.2	20.573
	29126				44.5		61.3	1,441.8	23.512
	29127N				41.0		86.6	2,274.3	26.264
	29127S						46.6	911.5	19.561
	29198						60.0	1,151.4	19.205
	33301						28.6	940.5	32.853
	Road r/w					35.5	44.5	940.8	21.154
89 Total	15.0	-	62.3	-	321.8	86.1	766.8	18,047.6	23.537
Alt 7 Grand Totals:		62.9	273.9	16.3	1,055.7	1,030.5	3,735.4 <sup>a</sup>	98,847.2	26.462
							3,489.3		

<sup>a</sup> Without road ROW.







# **Unit Summary Cards with Map Facing Summary Description**



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**Legend (by Unit No.) for Unit Numbering Scheme for Figures 2-2 to 2-7**

Actual Unit #	Map #	Alternative	Actual Unit #	Map #	Alternative	Actual Unit #	Map #	Alternative
Salvage Area	261	2, 4, 5	321011	70	2, 4, 7	332069	60	2, 4, 6, 7
Salvage Area	271	2, 4, 5	321012	73	2, 4, 7	332070	66	2, 4, 6, 7
Salvage Area	291	2, 4, 5	321013	72	2, 4	332071	74	2, 4, 6, 7
Group Sel. Area	321	4	321016	78	2, 4, 7	332072	75	4, 6, 7
Group Sel. Area	321	4	321017	88	2, 4, 7	332073	87	2, 4, 6, 7
Group Sel. Area	322	4	321018	104	2, 4, 5	332074	99	2, 4, 6, 7
Group Sel. Area	331	4						
Group Sel. Area	332	4	321019	95	2, 4	33301	132	4, 7
26102	159	2, 4, 5, 7	321022	109	2, 4	333078	42	4, 6, 7
26103	164	2, 4, 5, 7	321023	115	2, 4	333081	63	2, 4, 5, 6, 7
27102	151	2, 4, 5, 7	321024	128	2, 4, 5, 7	333083W	76	2, 4, 5, 6, 7
27105	153	2, 4, 5, 7	321025	121	2, 4, 5, 7	333084X	90	2, 4, 5, 6, 7
27107	160	2, 4, 5, 7	321026	141	2, 4, 5, 7	333084Y	90	2, 4, 5, 6, 7
27108	163	2, 4, 5, 7	321027	140	2, 4, 5, 7	333084Z	90	2, 4, 5, 6, 7
27109	169	2, 4, 5, 7	321028E	147	2, 4, 5, 7	333085	91	2, 4, 5, 6, 7
27110	170	2, 4, 5, 7	321028W	147	2, 4, 5, 7	333086	111	2, 4, 5, 6, 7
27113	165	2, 4, 5, 7	321029	148	2, 4, 5, 7	333093	117	4
29101	125	2, 4, 5, 7	321030	157	2, 4, 5, 7	381131	2	2, 3, 4, 5
29102	137	2, 4, 5, 7	321197	116	2, 4, 5	381133	3	2, 3, 4, 5
29103	142	2, 4, 5, 7	321199	106	2, 4, 7	381135	9	2, 3, 4, 5
29104	146	2, 4, 5, 7	322031	55	4	381136	7	2, 3, 4, 5
29105	144	2, 4, 5, 7	322032	67	2, 4, 7	381138	16	2, 3, 4, 5
29106	131	2, 4, 5, 7	322033	79	2, 4	381139	19	2, 3, 4, 5
29107	124	2, 4, 5	322034	81	2, 4, 7	381140	18	2, 3, 4, 5
29111	134	2, 4, 5, 7	322035	83	2, 4, 7	381199	5	2, 3, 4, 5
29112	155	2, 4, 5, 7	322036	96	2, 4, 7			
29113	167	2, 4, 5, 7	322037	94	2, 4, 7			
29117	161	2, 4, 5	322039	93	2, 4, 5			
29119	168	2, 4, 5	322040	110	2, 4, 5, 7			
29120	171	2, 4, 5	322041	108	2, 4, 7			
19121	172	2, 4, 5, 7	322042	120	2, 4, 7			
29122	173	2, 4, 5	322043	127	2, 4			
29123	174	2, 4, 5	322044	133	2, 4, 7			
29125	156	4	331045N	62	2, 4, 7			
29126	145	4, 7	331045S	62	2, 4, 7			
29127N	166	4, 7	331046	82	2, 4, 7			
29127S	166	4, 7	331047	86	2, 4, 7			
29130	177	4	331048	92	7			
29198	118	2, 4, 5, 6, 7	331049	112	2, 4, 6			
311140	1	2, 4, 5	331087	113	2, 4			
311141A	14	2, 4, 5	331188C	105	2, 4, 7			
311141B	14	2, 4, 5	331188H	105	2, 4			
311141C	14	2, 4, 5	332050	33	2, 4, 5, 6			
311142	4	2, 4, 5	332051	35	4			
311144	6	2, 3, 4, 5	332052	41	4, 6			
311145	12	2, 3, 4, 5	332053	37	4, 6, 7			
311146	8	2, 3, 4, 5	332054	36	4, 6, 7			
311199	15	2, 3, 4, 5	332055	51	4, 6, 7			
312143E	11	2, 3, 4, 5	332056E	46	2, 4, 5, 6			
312143W	10	2, 3, 4, 5	332056W	46	2, 4, 5, 6, 7			
321004	45	4	332057	64	4, 6, 7			
321006	54	4, 7	332058	49	4, 6, 7			
321007	59	4, 7, 2, 4, 7	332059	52	2, 4, 6, 7			
321008	53	2, 4, 7	332067	57	2, 4, 6, 7			
321009E	61	2, 4, 7	332068	69	2, 4, 6, 7			
321009W	56	2, 4, 7						
321010	65	4, 7						



Legend (by Map No.) for Unit Numbering scheme for Figures 2-2 to 2-7

Map #	Actual Unit #	Alternative	Map #	Actual Unit #	Alternative	Map #	Actual Unit #	Alternative
261	Salvage Area	2, 4, 5	73	321012	2, 4, 7	147	321028W	2, 4, 5, 7
271	Salvage Area	2, 4, 5	74	332071	2, 4, 6, 7	148	321029	2, 4, 5, 7
291	Salvage Area	2, 4, 5	75	332072	4, 6, 7	151	27102	2, 4, 5, 7
321	Group Sel. Area	4	76	333083W	2, 4, 5, 6, 7	153	27105	2, 4, 5, 7
322	Group Sel. Area	4	78	321016	2, 4, 7	155	29112	2, 4, 5, 7
331	Group Sel. Area	4	79	322033	2, 4	156	29125	4
332	Group Sel. Area	4	81	322034	2, 4, 7	157	321030	2, 4, 5, 7
1	311140	2, 4, 5	82	331046	2, 4, 7	159	26102	2, 4, 5, 7
2	381131	2, 3, 4, 5	83	322035	2, 4, 7	160	27107	2, 4, 5, 7
3	381133	2, 3, 4, 5	86	331047	2, 4, 7	161	29117	2, 4, 5
4	311142	2, 4, 5	87	332073	2, 4, 6, 7	163	27108	2, 4, 5, 7
5	381199	2, 3, 4, 5	88	321017	2, 4, 7	164	26103	2, 4, 5, 7
6	311144	2, 3, 4, 5	90	333084X	2, 4, 5, 6, 7	165	27113	2, 4, 5, 7
7	381136	2, 3, 4, 5	90	333084Y	2, 4, 5, 6, 7	166	29127N	4, 7
8	311146	2, 3, 4, 5	90	333084Z	2, 4, 5, 6, 7	166	29127S	4, 7
9	381135	2, 3, 4, 5	91	333085	2, 4, 5, 6, 7	167	29113	2, 4, 5, 7
10	312143W	2, 3, 4, 5	92	331048	7	168	29119	2, 4, 5
11	312143E	2, 3, 4, 5	93	322039	2, 4, 5	169	27109	2, 4, 5, 7
12	311145	2, 3, 4, 5	94	322037	2, 4, 7	170	27110	2, 4, 5, 7
14	311141A	2, 4, 5	95	321019	2, 4	171	29120	2, 4, 5
14	311141B	2, 4, 5	96	322036	2, 4, 7	172	29121	2, 4, 5, 7
14	311141C	2, 4, 5	99	332074	2, 4, 6, 7	173	29122	2, 4, 5
15	311199	2, 3, 4, 5	104	321018	2, 4, 5	174	29123	2, 4, 5
16	381138	2, 3, 4, 5	105	331188C	2, 4, 7	177	29130	4
18	381140	2, 3, 4, 5	105	331188H	2, 4			
19	381139	2, 3, 4, 5	106	321199	2, 4, 7			
33	332050	2, 4, 5, 6, 7	108	322041	2, 4, 7			
35	332051	4	109	321022	2, 4			
36	332054	4, 6, 7	110	322040	2, 4, 5, 7			
37	332053	4, 6, 7	111	333086	2, 4, 5, 6, 7			
41	332052	4, 6	112	331049	2, 4, 6			
42	333078	4, 6, 7	113	331187	2, 4			
45	321004	4	115	321023	2, 4			
46	332056E	2, 4, 5, 6, 7	116	321197	2, 4, 5			
46	332056W	2, 4, 5, 6, 7	117	333093	4			
49	332058	4, 6, 7	118	29198	2, 4, 5, 6, 7			
51	321009E	2, 4, 7	120	322042	2, 4, 7			
51	332055	4, 6, 7	121	321025	2, 4, 5, 7			
52	332059	2, 4, 6, 7	124	29107	2, 4, 5			
53	321008	2, 4, 7	125	29101	2, 4, 5, 7			
54	321006	4, 7	127	322043	2, 4			
55	322031	4	128	321024	2, 4, 5, 7			
56	321009W	2, 4, 7	131	29106	2, 4, 5, 7			
57	332067	2, 4, 6, 7	132	33301	4, 7			
59	321007	4, 7	133	322044	2, 4, 7			
60	332069	2, 4, 6, 7	134	29111	2, 4, 5, 7			
62	331045N	2, 4, 7	137	29102	2, 4, 5, 7			
62	331045S	2, 4, 7	140	321027	2, 4, 5, 7			
63	333081	2, 4, 5, 6, 7	141	321026	2, 4, 5, 7			
64	332057	4, 6, 7	142	29103	2, 4, 5, 7			
65	321010	4, 7	144	29105	2, 4, 5, 7			
66	332070	2, 4, 6, 7	145	29126	4, 7			
67	322032	2, 4, 7	146	29104	2, 4, 5, 7			
69	332068	2, 4, 6, 7	147	321028E	2, 4, 5, 7			
70	321011	2, 4, 7						
72	321013	2, 4						



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# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

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## UNIT IDENTIFICATION

UNIT #:

26102

MAP#

159

## STAND CHARACTERISTICS

Mid elevation stand of medium to large sawtimber. Western hemlock series in a mosaic with western hemlock-yellow cedar series. An exception is the poorly drained bench in the upper third of the unit where small and medium sawtimber in the mixed conifer series predominates. Defect is moderate to high especially in the hemlock. Stand structure ranges from uneven-aged to functionally even-aged. Gaps have developed from windthrow and senescence. Advanced western hemlock regeneration occupies about 20% of growing space. Understory vegetation is primarily blueberry with devil's club common on the steeper slopes and more favorable microsites as evidenced by larger timber. Skunk cabbage is common on the flatter slopes with restricted drainage as in the mixed conifer series. Instability is evident along drainages in the steeper portions of the unit. Merchantable timber is all over 150 yrs old and over 2/3 of volume is greater than 350 yrs. Potential productivity is good except for fair in mixed conifer. Windthrow is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Heavy partial cut feasible; (2) Tailholds external to unit on west boundary, (3) 3300 feet of temporary road construction required.

**Visual Resource Management:** (1) VQO: Modification; VAC: High; (2) Some concern with background view from ferry route.

**Soils / Geology:** Northern third of unit is on high hazard soils (Class III), although less than 60% slope. BMP 13.5.

**Fisheries / Watershed:** Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c.

**Wildlife:** Possible travel corridor between drainages.

**Cultural / Recreation / Subsistence:** None.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of understocked stand with a decadent, mature overstory.
- (2) Enhance timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Provide a programmed timber yield.
- (6) Skyline yarding with one end suspension for soil protection, on entire unit.
- (7) Protect high hazard soils in northern third of unit.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative because: (1) Provides a high volume yield from a defective stand with high potential and low current net productivity; (2) Reserve tree selection retains (a) large defective hemlock, and (b) yellow cedar and Sitka spruce of good phenotype for vertical structure and cavity nesting habitat, (c) seed sources for the higher valued timber species, and (d) visual softening of harvest impacts. (3) Logging system feasibility is good for a heavy partial cut. Clearcut and clearcut with reserves would provide a 5-10% higher timber yield but less regeneration of the higher valued and longer lived species without planting and would not ameliorate the impacts to visual or wildlife habitat resources as well as shelterwood with reserves. Selection and sanitation salvage are of questionable engineering feasibility without shifting to helicopter yarding, poorer economic choices, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundary was determined by logging setting boundaries from a proposed road that terminates at the northern setting of the unit. The west unit boundary provides an uncut timber fringe that buffers the muskeg. To the north, the south setting of adjacent 321029 (Chatham area) has been dropped and provides a travel route between muskeg areas for wildlife.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and future blowdown of reserve trees.
- (2) Retention of patches of advanced reproduction.
- (3) If Year 3 stocking survey indicates < 100 well-distributed YC and SS per acre, interplant 150 SS and YC per acre Year 4.
- (4) Schedule precommercial thinning.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 159 VCU: 86 UNIT: 26102 ALTERNATIVE(S): 2 4 5 7

ACRES: 73.93 TOTAL NET MBF: 1746.8 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 179

**LEGEND**

	EXISTING ROAD		LOGGING SYSTEM CODES:		STREAM TTRA BUFFER
	PROPOSED ROAD				BEACH/ESTUARY BUFFER
	PROPOSED TEMP ROAD				SEAWATER
	UNIT BOUNDARY				LAKE
	ADJACENT UNIT				LAKE PROTECTION ZONE
	SETTING BOUNDARY		ROAD BEGINS		
	CONTOUR LINE		LANDING & NUMBER		
	OWNERSHIP BOUNDARY		EAGLE TREE		
	RIPIARIAN MGMT AREA				
	CLASS 1 STREAM				
	CLASS 2 STREAM				
	CLASS 3 STREAM				
	CLASS 4 STREAM				

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET

0 660 1320 1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

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## UNIT IDENTIFICATION

UNIT #: 26103

MAP# 164

Note: Alts. B, C, and E are conventional logging. Alt. D is helicopter logging

## STAND CHARACTERISTICS

Mid to upper elevation stand of medium sawtimber with average defect and high YC mortality. Forest series is W hemlock-yellow cedar. Aspect is south to southwest. The stand is bisected by two Class III v-notch streams running north to south. Canopy closure is moderately dense with open patches of older, unmerchantable snags. Most snags are yellow cedar affected by cedar decline. YC snags intermixed with green timber tend to be salvageable. Between 20 % and 40% of the stand is stocked with advanced reproduction. Most advanced reproduction is WH, but YC can be found throughout the stand. Understory species are blueberry, rusty menziesia, and skunk cabbage. Soil drainage is moderately poor. Most merchantable timber is over 250 yrs old and there is a partial understory of merchantable 50 to 120 yr old timber. Potential productivity is fair to moderate.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Heavy partial cut feasible; (2) Split yarding on Class IV in west unit and yarding away from all muskegs is not feasible. (3) Complex anchors, tail trees, and tailholds external to unit are required, (4) Some side blocking, (5) 1500 feet of temporary road required. (6) Sanitation salvage Rx is feasible if helicopter harvest system.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High; (2) Some concern with background view from ferry route.

**Soils / Geology:** (1) Productivity and regeneration potential of muskegs and low site areas.

**Fisheries / Watershed:** (1) Streams 1a and 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 1, 3 and 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 5 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Recommend retention of reserves and snags for vertical structure diversity and other wildlife habitat values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:**

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an decadent overmature stand.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield for downstream fisheries.
- (6) Provide for yellow cedar regeneration.
- (7) Design alternative silviculture systems to provide operational demonstrations of adaptive management trials.
- (8) Provide a programmed timber yield.
- (9) Full suspension is proposed for the eastern Class III stream.
- (10) Avoid potential for increased stream temperature and down stream impacts to the Class II stream.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative because: (1) Provides a high volume yield from a defective stand with high potential and low current net productivity; (2) Reserve tree selection provides large defective hemlock and yellow cedar and Sitka spruce of good phenotype for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts; (3) Logging systems feasibility is good for a heavy partial cut; and (4) Clearcut and clearcut with reserves would provide a 5-20% higher timber yield but less regeneration of the higher valued and longer lived species without planting, and would not ameliorate the impacts to visual or wildlife habitat resources as well as shelterwood with reserves. Selection and sanitation salvage are of questionable engineering feasibility without shifting to helicopter yarding, poorer economic choices, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

West boundary follows transition into low site and muskeg. The south east corner is located at the upper extension of a Class II stream buffer that continues into a Class III in the unit that splits into 2 Class IV V-notch channels. Other unit boundaries are setting boundaries from the logging systems plan. Settings to the east, northeast, and northwest are part of the helicopter sanitation salvage proposal.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and projected blowdown of reserve trees.
- (2) Retention of patches of advanced reproduction.
- (3) Plant YC and SS.

## MONITORING PLAN

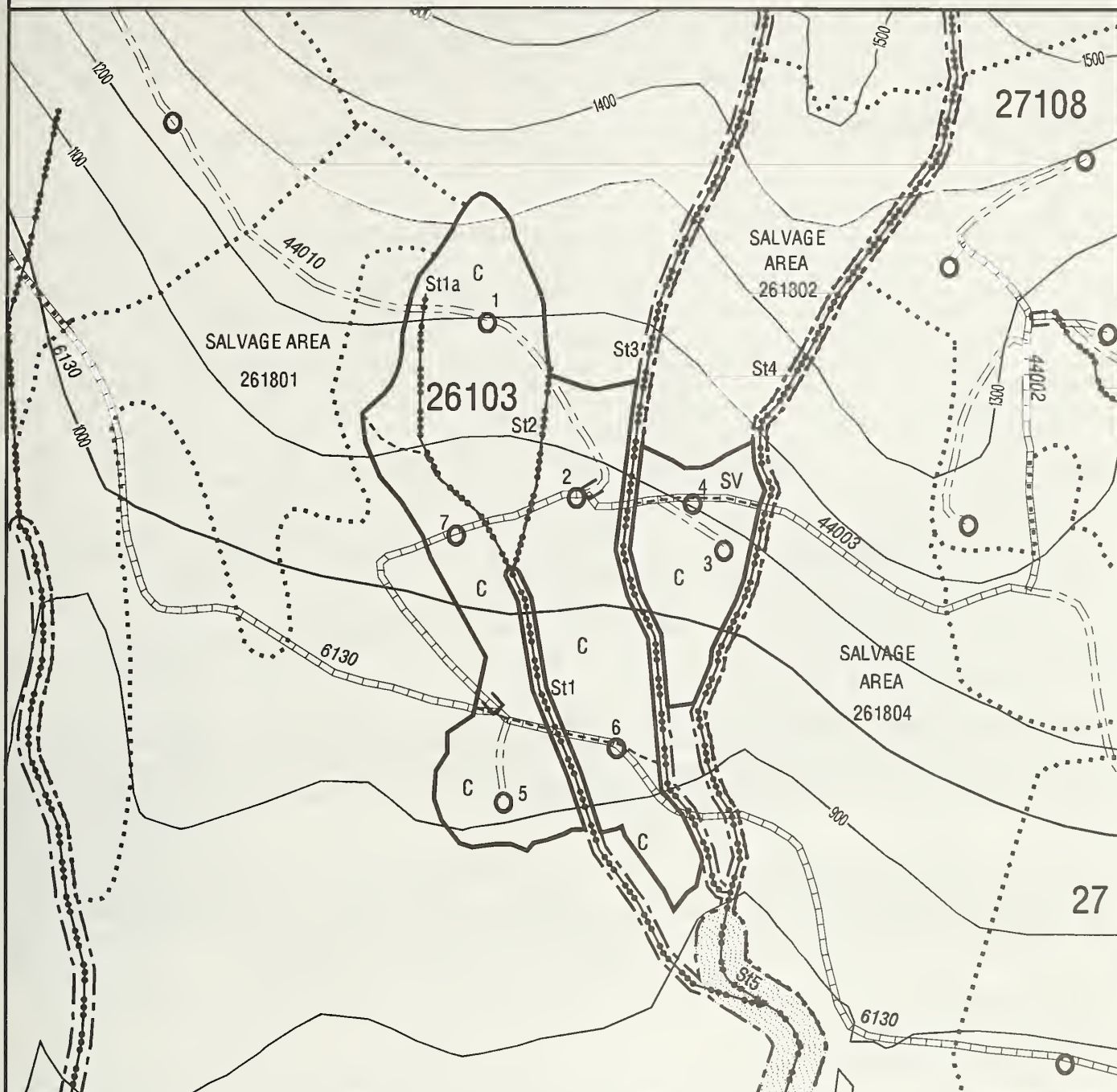
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 164 VCU: 86 UNIT: 26103 ALTERNATIVE(S): 2 4 5 7

ACRES: 60.49 TOTAL NET MBF: 659 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 179



## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

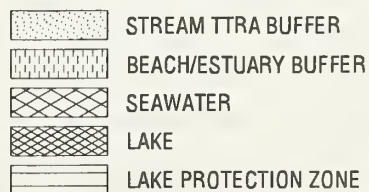
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

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## UNIT IDENTIFICATION

UNIT #: 27102

MAP# 151

## STAND CHARACTERISTICS

Mid elevation western hemlock and Sitka spruce series stand of large sawtimber. Snags are common with western hemlock in decline and frost crack common in large spruce. Topography is gentle and soil is moderately well drained. The site is on a southwest aspect on a lower slope adjacent to a Class II fish bearing stream. Stand structure is two-storied with large timber with age estimated as at least 450 yrs intermixed with 120 to 200 yr old medium sawtimber. Advanced reproduction is not abundant. Shrub cover is open with scattered blueberry and locally dense patches of devil's club and skunk cabbage. Windthrow is a management concern. Potential productivity is good.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Shovel logging at settings 3, 5, & 6. (2) High lead logging on setting 4. (3) Partial harvest is not feasible. BMP 13.9.

**Visual Resource Management:** VQO: Modification; VAC: High.

**Soils / Geology:** Hazard Class 3 and 4 soils, deleted from unit. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1 (AF) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area. The RMA is the greater of the active portion of the alluvial fan or 140ft from the current channel(s). Manage across the remainder of the fan (no more than 10% of the fan harvested in a 30-year period) with the objective of leaving large trees within the stand for future recruitment to stream channels. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 2 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Streams 3, 5 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** (1) Possible mountain goat habitat. (2) Sitka blacktailed deer use noted in unit. (3) Goshawk and marbled murrelet surveys had no response. (4) Recommend leaving green reserve trees and snags for vertical structure and other wildlife habitat values. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concern.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Regeneration of overmature stand with a decadent overstory and a mature understorey.
- (2) Improve timber volume and value productivity.
- (3) Avoid areas of high soil mass movement risk.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of merchantable timber species.
- (6) Provide a programmed timber yield.
- (7) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut w/green reserve trees and snags is the selected alternative because: (1) Provides a high volume yield from a defective stand with high potential and low current net productivity; (2) Green Reserve tree-selection provides large defective hemlock and yellow cedar and Sitka spruce of good phenotype for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts. Clearcut would provide a 5 -10% higher timber yield but less regeneration of the higher valued and longer lived species with out planting and would not ameliorate the impacts to visual or wildlife habitat resources as well as clearcut with reserves.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundary follows the TTRA buffer along the Class II streamcourse to the southwest and logical yarding limits and class III buffers elsewhere. Flood plain was deleted in location. All hazard Class 3 and 4 soils were deleted from the unit. Unit location was shifted to the southwest to avoid unstable slopes and mountain goat habitat. Potential helicopter salvage in the cedar decline area is located on steeper ground to the north and on the south side of the Class II buffer.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Scarification to encourage spruce and alder regeneration.
- (3) Schedule PCT. Favor Sitka spruce.
- (4) Monitor salmonberry and alder competition with regeneration.

## MONITORING PLAN

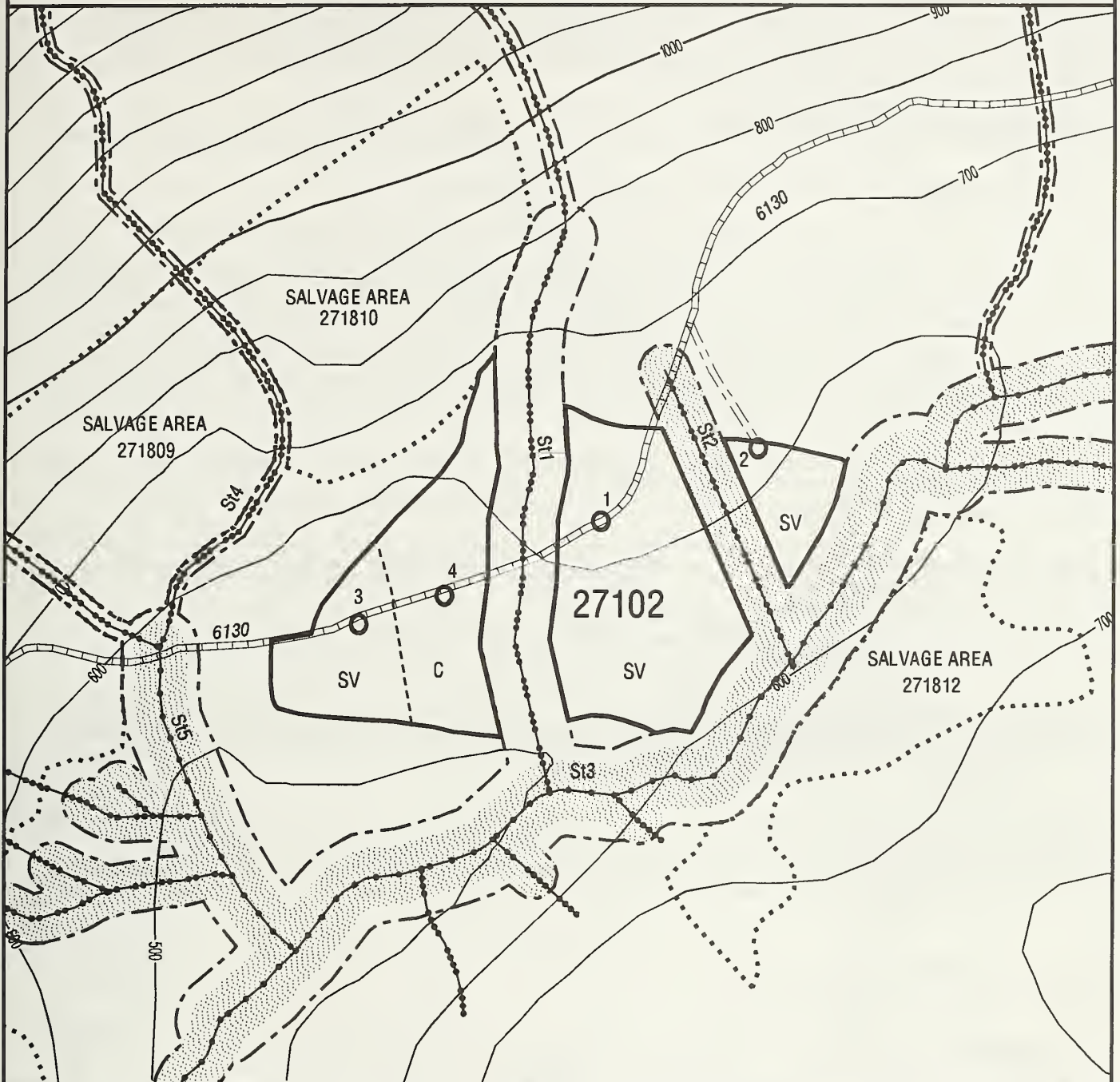
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 151 VCU: 87 UNIT: 27102 ALTERNATIVE(S): 2 4 5 7

ACRES: 40.64 TOTAL NET MBF: 1513.4 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 153



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

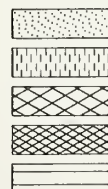
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

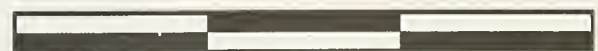
○ 1 LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #:

27105

MAP#

153

## STAND CHARACTERISTICS

Mid to upper elevation stand of medium to large sawtimber in the western hemlock and western hemlock-yellow cedar series. Mortality and windthrow gaps occur throughout the stand. Most overstory is greater than 280 yrs old. Understory and advanced reproduction occupy less than 20% of growing space. Stand structure is functionally even-aged. Understory is moderate to heavy blueberry with devil's club, rusty menziesii, shield fern, and skunk cabbage. Soil drainage is moderate. Topography is moderate and unbroken except for a series of small v-notches bisecting the unit from the northwest to southeast. Potential productivity is moderate and regeneration potential is good. Windthrow is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Slackline with 90 ft tower proposed; (2) Partial cut not feasible.; (3) Snag retention a safety hazard. (4) Tailtrees may be required. BMP 13.9.

**Visual Resource Management:** (1) VQO: Modification; VAC: High. (2) Background 8.5 mi view from ferry route.

**Soils / Geology:** (1) Exclude hazard Class 4 soils and low productivity soils from timber harvest. (2) Locate northeast corner below existing V-notch. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1 and 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec 3b. (3) Stream 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (4) Stream 1a, 2a, 3a, 6 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 5 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) No response to goshawk and marbled murrelet surveys. (2) Recommend leaving green tree retention and snags for vertical habitat structure and other wildlife values. Some opportunities will be used in this unit to retain vertical structures.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Regeneration of a decadent overmature stand.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut was selected over clearcut with reserves, shelterwood with reserves, or group selection because partial cut harvest feasibility is poor and windthrow potential of leave trees is high. Clearcut is the optimum system for timber productivity and harvest economics. Defer treatment would not provide a timber yield; would not regenerate a unit of moderate visual, watershed, and wildlife resource impact and high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

South and east boundaries follow stream course buffers. The northeast boundary was modified to exclude the potentially unstable v-notch. The northwest boundary follows the transition into oversteepened hazard class 4 soils. The Low site are in the southwest corner of the unit was also excluded. Proposed helicopter salvage areas are located to the northwest and southeast of the unit.

### Forest Productivity Activities:

- (1) Soil warming and mixing from logging disturbance.
- (2) Plant YC to maintain merchantable species diversity.
- (3) Schedule PCT. Favor YC and SS.

## MONITORING PLAN

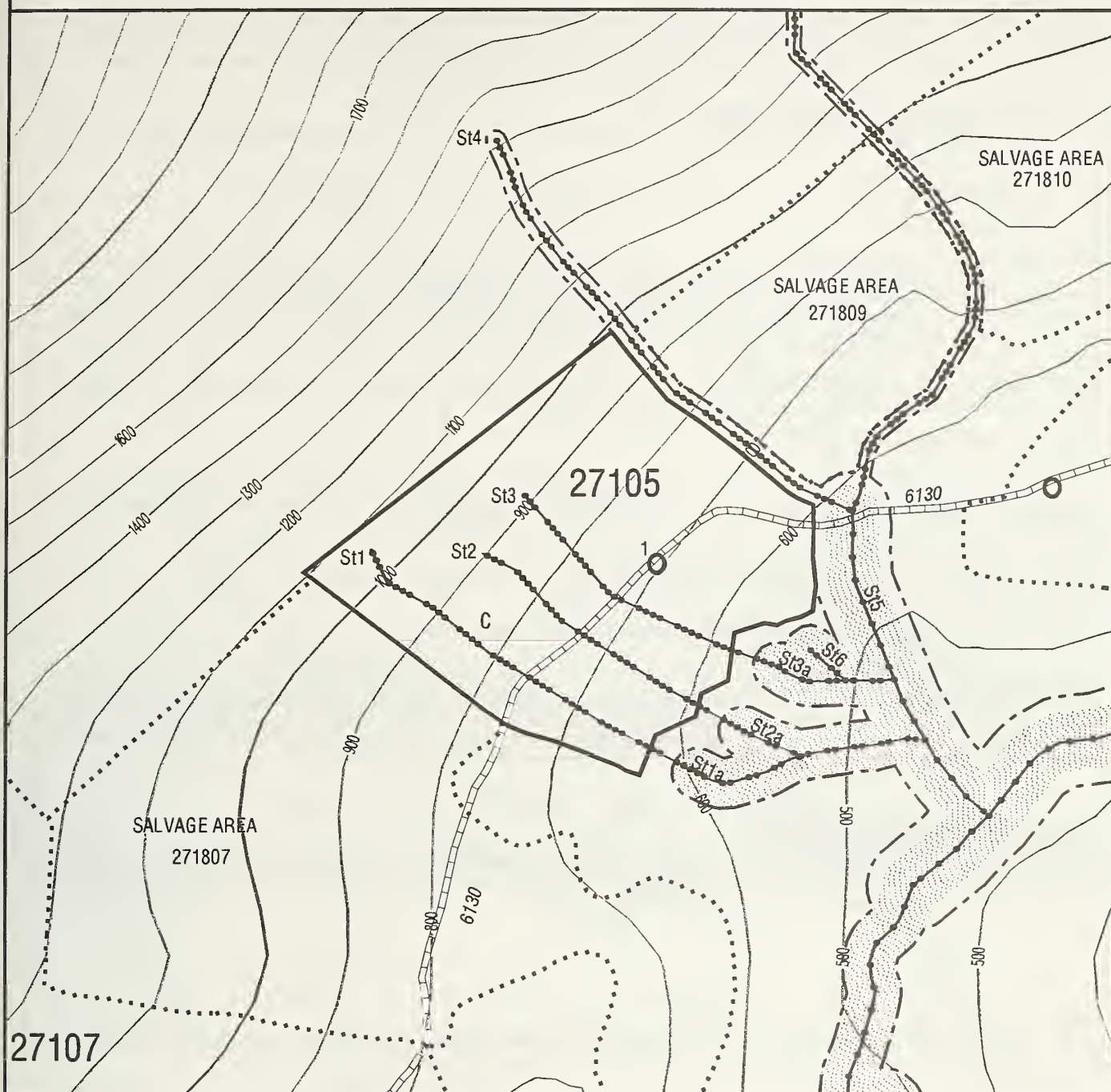
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 153 VCU: 87 UNIT: 27105 ALTERNATIVE(S): 2 4 5 7

ACRES: 48.83 TOTAL NET MBF: 1036.8 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 26 ROLL NO.: 888 PRINT NO.: 169



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 27107

MAP# 160

## STAND CHARACTERISTICS

Mid to upper elevation stand of medium and large sawtimber in the western hemlock-yellow cedar series with low site inclusions of mixed conifer. Defect and mortality is average except for some cedar decline is evident in pockets of poorly drained soils. Stand structure is uneven-aged to two-storied with up to 40% of the stand stocked with advanced reproduction. Overstory age is greater than 300 yrs with a merchantable understory 150 to 250 yrs old. Aspect is predominantly southeast. Soil drainage is moderately poor. Regeneration potential and potential productivity are moderate. Windthrow risk is a moderate management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter harvest option would allow sanitation salvage Rx. in alternatives 2,4 &5. Cable yard(small and large slackline) in alternative 7. Land logs along road.

**Visual Resource Management:** (1) VQO: Modification; VAC: High; (2) Sensitive visuals from 8 mi background from ferry route.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1 and 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 2b (HC6)- See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 2a (HC5) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** (1) Suitable Canadian goose and red breasted sapsucker habitat. (2) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Sanitation salvage would allow for wildlife corridor movement of importance if group salvage

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Reduce sediment yield to fish bearing streams.
- (6) Maintain diversity of commercial tree species.
- (7) Design alternative silviculture systems to provide operational demonstrations of adaptive management trials.
- (8) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Planned reserves include a no cut buffer on the v-notch. Sanitation salvage would be the selected alternative if the unit is harvested by helicopter. Sanitation salvage would conserve advanced reproduction and thrifty mature timber with less impact to watershed, wildlife habitat, and visuals. Temporary roads would not be constructed. Timber productivity from blowdown after sanitation salvage and reduced regeneration and performance of advanced and new regeneration favor stand regeneration. Defer treatment would not provide a timber yield and would not regenerate (or sanitize) a decadent stand with moderate watershed impact.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Northeast and southwest boundary located at logical setting boundaries. East boundary follows transition into low site and muskeg. Southeast boundary follows a Class II buffer and exclude sensitive watershed and low site timberland. West boundary is located to leave a future setting between units 27107 and 27108. Adjacent stands to the north, northeast, east, and south are included in the proposed helicopter salvage.

### Forest Productivity Activities:

Sanitation treatment will remove diseased trees that are no longer capable of long-term sustainable production. This will make growing space available for more vigorous trees that will better utilize the capabilities of the site. Salvage of dead trees is not expected to affect site productivity.

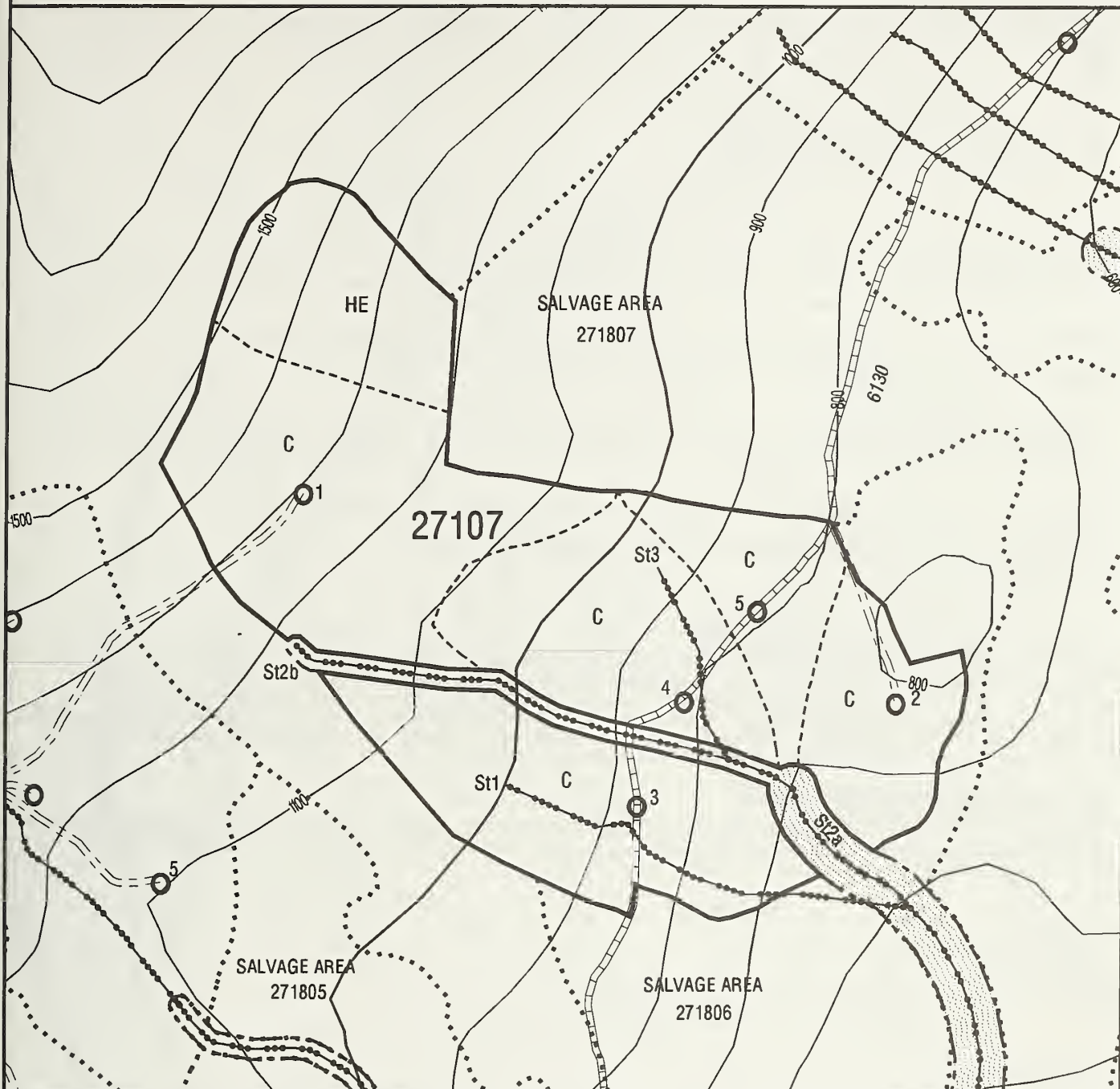
## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit acceptance and completion of erosion control	TS Contract	Sale Admin
1	Evaluation of stand condition and health	Silvi Rx	Silviculturist
10	Stand Examination: Reevaluation of stand health	TSE eval. - No monitoring standards set	Silviculturist



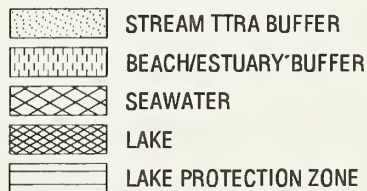
PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 160 VCU: 87 UNIT: 27107 ALTERNATIVE(S): 2 4 5 ALL SETTINGS ARE HE IN ALTS. 2 4 5  
 AND SETTING HE EXCLUDED IN ALT. 7  
 ACRES: 100 TOTAL NET MBF: 2156 QUAD(S): SUMA5 QUARTER QUAD(S): NE  
 PHOTO INFO: YEAR: 1989 FLIGHT LINE: 26 ROLL NO.: 888 PRINT NO.: 168



LOGGING SYSTEM CODES:

HE = HELICOPTER  
 SV = SHOVEL  
 C = CABLE  
 St1 STREAM ID IN NARRATIVE  
 ROAD BEGINS (square symbol)  
 LANDING & NUMBER (circle with number)  
 EAGLE TREE (star symbol)



CONTOUR INTERVAL 100 FEET  
 SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 27108

MAP#: 163

Note: Alts. B, C, and E are conventional logging. Alt. D is helicopter logging.

## STAND CHARACTERISTICS

Upper elevation stand of medium and large sawtimber that is a mosaic of western hemlock, western hemlock-yellow cedar, and mixed conifer forest series. Defect is average to high. Cedar decline and defect is pronounced in south east portion of the stand and in surrounding stands. Stand structure is a mosaic of functionally even-aged (in the northern unit to two-storied to unevenaged in VC 4 areas most impacted by cedar decline). Most snags in the areas of heavy cedar decline are not salvageable. Overstory age exceeds 350 yrs with merchantable understory timber most in the 180 to 220 yr age class. Aspect is predominantly southeast and topography is gentle to moderate. Soil drainage is moderate to poor. Regeneration potential is high except for only fair in mixed conifer areas of cedar decline. Potential productivity is high to fair following the same pattern as soil drainage and regeneration potential.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Small slackline and running skyline proposed. (2) Heavy partial harvest is feasible. (3) Sanitation salvage Rx is feasible if helicopter harvest system. (4) Tailtrees, skyline extensions outside of unit, and complex guyline anchors required. (5) 2000 feet of temporary spur roads required. BMP 13.9

**Visual Resource Management:** (1) VQO: Modification; VAC: High (2) Visually sensitive as 8 mile background view from ferry route.

**Soils / Geology:** (1) Exclude low productivity timberland. (2) Advanced podsol formation is believed to be associated with cedar decline.

**Fisheries / Watershed:** (1) Stream 1, 2a, 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 2b - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec 3b.

**Wildlife:** (1) Suitable habitat for Canadian goose and red breasted sapsucker. (2) Red tail hawk present in unit during stand exam. (3) Recommend retention of green reserve trees and snags for vertical habitat structure and other wildlife values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of a overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Reduce sediment yield to fish bearing streams.
- (5) Design alternative silviculture systems to provide operational demonstrations of adaptive management trials.
- (6) Provide a programmed timber yield.
- (7) Skyline yarding.
- (8) Avoid potential for increased stream temperature effects.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected Rx. Planned reserves are 50 percent shade tree retention on the Class IV stream and reserve tree retention below the road in setting 2 and all of settings 3, 4, and 5. Shelterwood with reserves would conserve advanced reproduction and have less impact to visuals, wildlife, and watershed. Blowdown subsequent to harvest in areas of cedar decline may forestall podsol formation believed associated with the cedar decline. Clearcut and clearcut with reserves would result in more harvested volume and be more efficient to harvest, but would not meet wildlife and visual objectives as well. Group selection and sanitation-salvage have poorer harvest economics, are less feasible operationally, and would not provide a regenerated stand with the desired structural characteristics. Defer treatment would not provide a timber yield and would not regenerate (and/or sanitize) a decadent stand with low watershed impact.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit boundary to the northwest is a v-notch and to north is future setting boundary. The northeast boundary is located to leave a future setting between units 27108 and 27107. The east and south boundaries follow the transition into low productivity timberland. The unit boundary to the west is based upon future setting boundaries. Stands to the west, southeast, and south are included in the proposed helicopter salvage.

### Forest Productivity Activities:

- (1) Soil warming and mixing from logging disturbance.
- (2) Windthrow of reserve trees or sanitation salvage residual to counter podsol formation.
- (3) Plant 150 YC per acre in settings 1 and 3 if all skyline; setting 1 alone if skyline and clearcut.
- (4) Schedule PCT post harvest if sanitation salvage and at +/- age 20 for regeneration Rx's.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

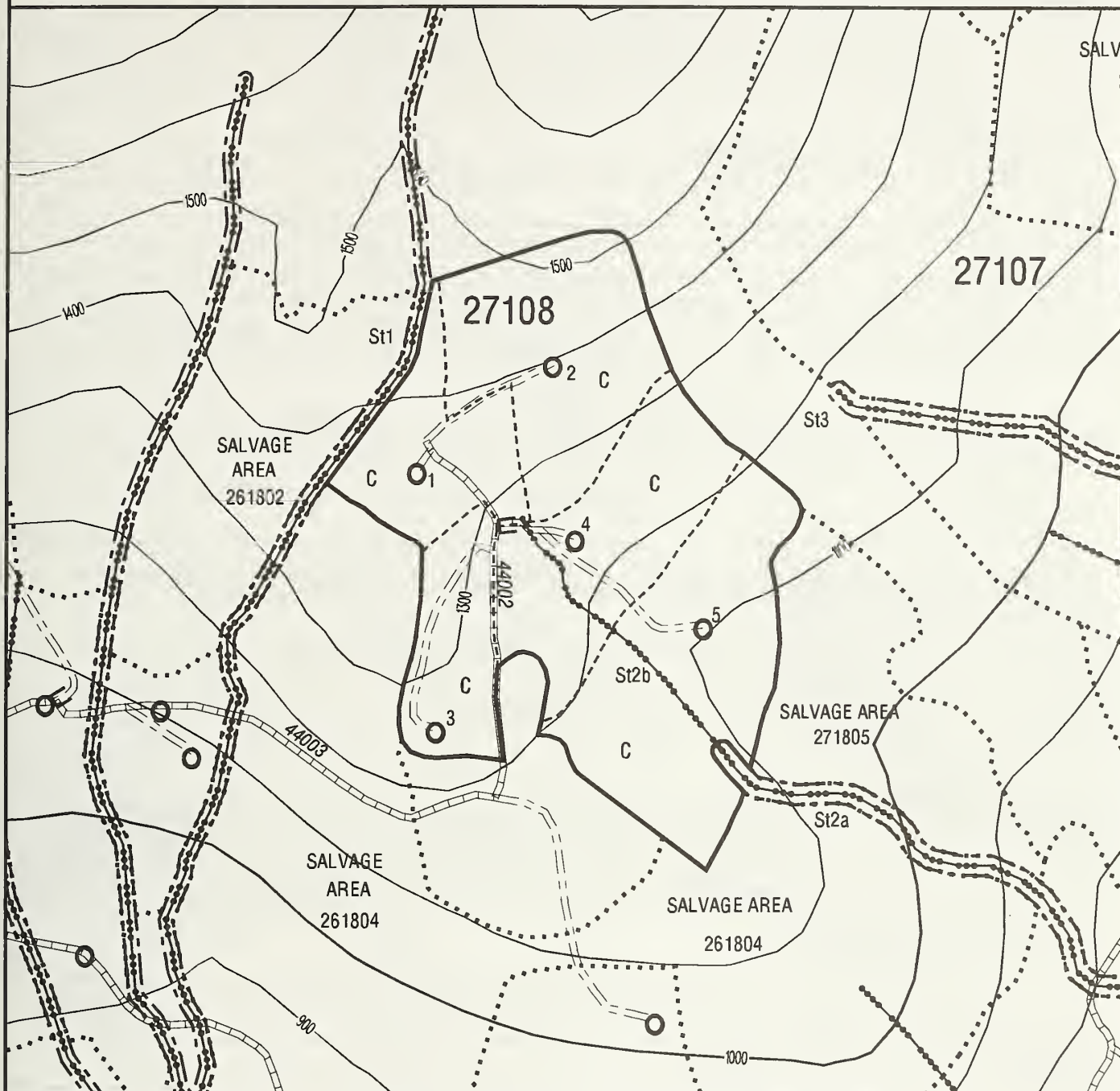


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 163 VCU: 87 UNIT: 27108 ALTERNATIVE(S): 2 4 5 7

ACRES: 70.79 TOTAL NET MBF: 1052.7 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 135



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

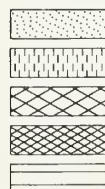
HE = HELICOPTER  
SV = SHOVEL  
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

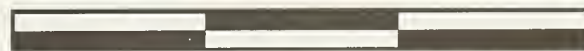
LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 27109

MAP# 169

## STAND CHARACTERISTICS

Mid elevation stand of small to large sawtimber that is predominantly western hemlock-yellow cedar in a mosaic with lesser amounts of western hemlock and mixed conifer series. Defect is average. There is high quality large yellow cedar in the central unit and some cedar decline in the lower unit where slope flattens and soil drainage is poor. Stand structure is functionally even-aged. Overstory age is greater than 300 yrs and there is an understory of younger overmature merchantable timber. There is fair western hemlock advanced regeneration but little cedar regeneration. WH mistletoe infection is present. Soil is moderately well drained in the VC 5 and poorly drained in the VC 4. Two v-notch streams bisect the unit from the northwest to the southeast. Aspect is predominantly southeast and slopes are moderate. Potential productivity and regeneration potential is moderate to high except in areas of poor drainage. Windthrow is a management concern. Cedar decline is present to pronounced in surrounding stands.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Heavy partial harvest is feasible but snag retention a safety hazard. (2) Split yarding or full suspension is feasible on v-notch streams. (3) About 500 ft of temporary road required to access two landings. (4) 90 ft and 70 ft tower slacklines required. (5) Skyline extensions through Class I buffer may be necessary. BMP 13.9.

**Visual Resource Management:** (1) VQO: Modification; VAC: High. (2) Sensitive background view is 8 mi from ferry route.

**Soils / Geology:** McGilvery soil within unit; adjustments during layout may be required. Unit boundary will be located to minimize soil concerns. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1 and 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 4 and 5 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6,12.6a and 13.16.

**Wildlife:** (1) Suitable Canadian goose and red breasted sapsucker habitat. (2) Red tail hawk in unit, but no nest was found. (3) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Clearcut with reserves was adopted for this unit. Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** No concern.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Maintain diversity of commercial timber species.
- (7) Design alternative silviculture systems to provide operational demonstrations of adaptive management trials.
- (8) Provide a programmed timber yield.
- (9) Protection for temperature sensitive streams.
- (10) Minimize potential for windthrow.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative. Sanitation salvage by helicopter would be the selected alternative if the Alternative D - Scenic Helishow is the project alternative. Clearcut with reserves as planned is three clearcuts spaced by stream buffers. This alternative is the most economical harvest method and provides the highest timber yield of all options save clearcut without leave buffers. The buffers are expected to provide yellow cedar and Sitka spruce seed with better distribution than clearcut. Watershed, visual, and wildlife impact would be less than the clearcut but more than the sanitation salvage. Group selection would fragment the unit extensively and not meet other objectives as well. Blowdown is expected to occur in the buffers and would also be significant in the sanitation salvage Rx. Defer treatment would not regenerate or sanitize a decadent stand nor provide a timber yield.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary follows a 100 ft TTRA buffer on a Class I stream. The paper plan unit extended across this stream but this portion of the unit was deleted when the stream was found to be fish bearing. The unit extends between the two bisecting Class III streams to the southeast until a transition into low productivity timberland. The west and northwest boundaries follow setting breaks for future harvest. The unit is located amid an area of heavy cedar decline. To minimize blow down within the V-notch portion of the buffer, buffer edges will be tied to windfirm boundaries where present and will also be feathered into the unit by leaving regeneration and shorter windfirm trees up to the no cut buffer boundary.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Yellow cedar planting.
- (3) Schedule PCT. Favor YC and SS.

## MONITORING PLAN

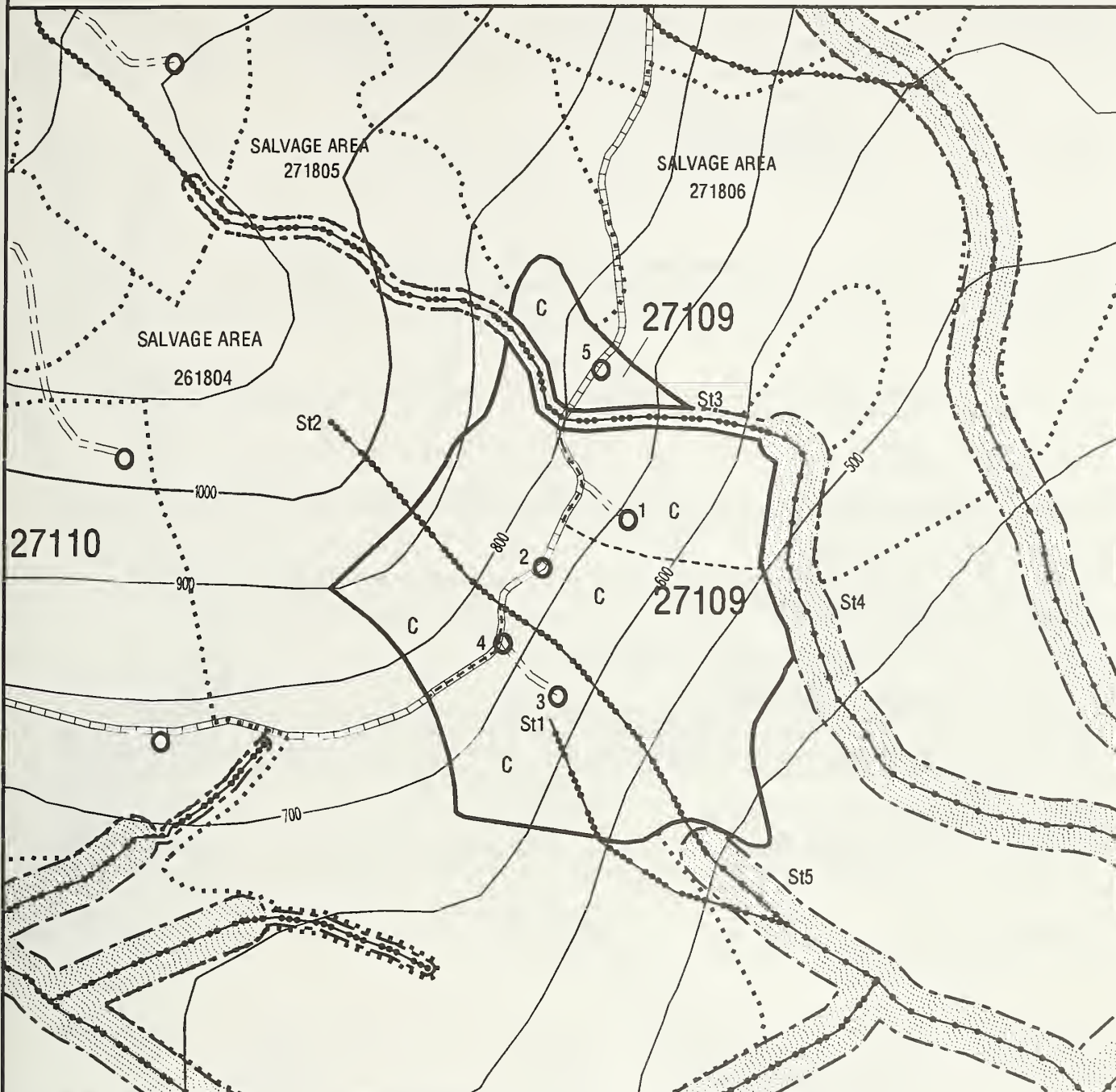
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 169 VCU: 87 UNIT: 27109 ALTERNATIVE(S): 2 4 5 7

ACRES: 51.81 TOTAL NET MBF: 1067.7 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 26 ROLL NO.: 888 PRINT NO.: 168



## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

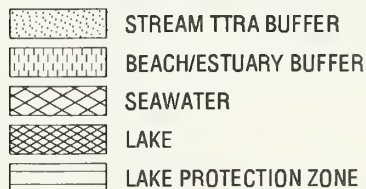
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



**UNIT IDENTIFICATION**

UNIT #: 27110

MAP# 170

Note: Alt. D is helicopter logging on unit north of Road 6130.

**STAND CHARACTERISTICS**

Mid to upper elevation stand of W. hemlock-yellow cedar series with small spruce component. Volume class 4, composed of medium sawtimber with average to high defect and very high mortality. Stand structure is functionally even-aged with overstory age 250 years. South-facing slopes are moderately steep with moderately poorly drained soils. Understory is light blueberry cover with skunk cabbage common. Advanced conifer regeneration is sparse. Regeneration potential is moderate. The unit and surrounding areas are affected by cedar decline. Upper stand is in relatively good condition and cedar decline increase towards the stand bottom except a 15 acre patch of 120 yr old timber. Regeneration potential is moderate and potential productivity is fair.

**RESOURCE CONSTRAINTS AND OPPORTUNITIES**

**Roads / Logging Systems:** (1) Small slackline and gravity return upper 3 settings. (1) Tiebacks required at all three landings. (3) 1200 feet of temporary road to landing 3. (4) Tail trees, sideblocking, and skyline extensions required. (4) Heavy partial harvest feasible cable settings, helicopter harvest allows light partial harvest. BMP 13.9.

**Visual Resource Management:** (1) VQO: Modification, VAC: High. (2) Viewed 8 mi in background from ferry route. (3) Visually sensitive.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1a (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 1b (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Suitable habitat for Canadian goose and red breasted sapsucker. (2) Recommend green reserve trees for vertical structure and other wildlife habitat values. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:**

**INTEGRATED RESOURCE OBJECTIVES**

(Note: To meet forest plan and project objectives in light of resource Constraints &amp; Opportunities)

- (1) Regeneration of overmature stand with decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Design alternative silviculture systems to manage yellow cedar.
- (6) Reduce sediment yield to fish bearing streams.
- (7) Provide a programmed timber yield.
- (8) Skyline yarding with one end suspension.

**RATIONALE FOR ALTERNATIVE SELECTION**

A combination of clearcut with reserves and shelterwood with reserves (lower setting) are the silvicultural methods that provide the most efficient timber harvest and subsequent timber productivity. Clearcutting the entire stand would not mitigate visual impact nor provide wildlife habitat values of clearcut with reserves and shelterwood with reserves. Group selection and sanitation-salvage would be less efficient, result in lower future productivity, and not meet the desired structural characteristics for the new stand. Defer would not replace a declining stand with vigorous timber nor recover value and release advanced regeneration in the cedar decline area.

**INTEGRATED MANAGEMENT PRESCRIPTION****Description of Unit Boundary Determination:**

North, west, and east boundaries were located as feasible logging setting boundaries. The south boundary follows a 100 ft TTRA Class II buffer. This area was dropped from the paper plan design when field review indicated that the two streams were Class II rather than Class III. The unit is surrounded on all sides except part of the south boundary with the proposed Stikine sanitation salvage project.

**Forest Productivity Activities:**

- (1) Soil warming and mixing from logging disturbance and blowdown of reserve trees.
- (2) YC and SS planting to improve value and volume productivity.
- (3) Schedule PCT and favor SS and YC.

**MONITORING PLAN**

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist







# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

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## UNIT IDENTIFICATION

UNIT #: 27113

MAP# 165

## STAND CHARACTERISTICS

Upper elevation stand of W. hemlock-yellow cedar and W. hemlock series. Volume classes 4 & 6, composed of large sawtimber with low defect and high mortality; a small area of low-site volume was also included within the unit. Stand structure is functionally even-aged with overstory age 300+ years. South to west facing slopes are moderately steep with a single Class III stream in the northern portion of the unit; soil drainage is moderate to moderately poor. Understory is blueberry with skunk cabbage and occasional devils club and shield fern. Advanced conifer reproduction is sparse; regeneration potential is high except on low site areas. Potential productivity is high.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Large slackline 90 ft tower and 1 3/8 in skyline. (2) Partial harvest not feasible because of sidehill yarding. (3) Tailtrees required. (4) Skyline extension outside unit and rigging through stream buffer required. 2000 feet of temporary road required. BMP 13.9.

**Visual Resource Management:** (1) VQO: Modification, VAC: High. (2) Not seen.

**Soils / Geology:** (1) Exclude low productivity forest soil from harvest.

**Fisheries / Watershed:** (1) Stream 1 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 12.6, 12.6a and 13.16. (2) Stream 2 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** (1) Recommend leaving green reserve trees and snags for vertical structure and other wildlife habitat values. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a poor understory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of commercial timber species.
- (6) Provide a programmed timber yield.
- (7) Tail trees, skyline extensions, and rigging through stream buffer required.
- (8) Skyline with one-end suspension for soil protection.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because it is the most optimum for harvest operations and timber productivity. Partial harvest is not a feasible option due to terrain and operational limitations. Defer would not replace a slow growing and decadent stand with a rapid growing young stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The west and south boundaries border low productivity / low volume areas. The south boundary borders a 100 ft TTRA Class II stream buffer. The northwest corner of the unit was deleted to exclude low productivity forest land. The north boundary also generally follows the transition into low-site. The east boundary was located to retain a future unit and timbered habitat between units 27113 and 29113

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Planting YC and SS to maintain species mix and improve value and volume productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

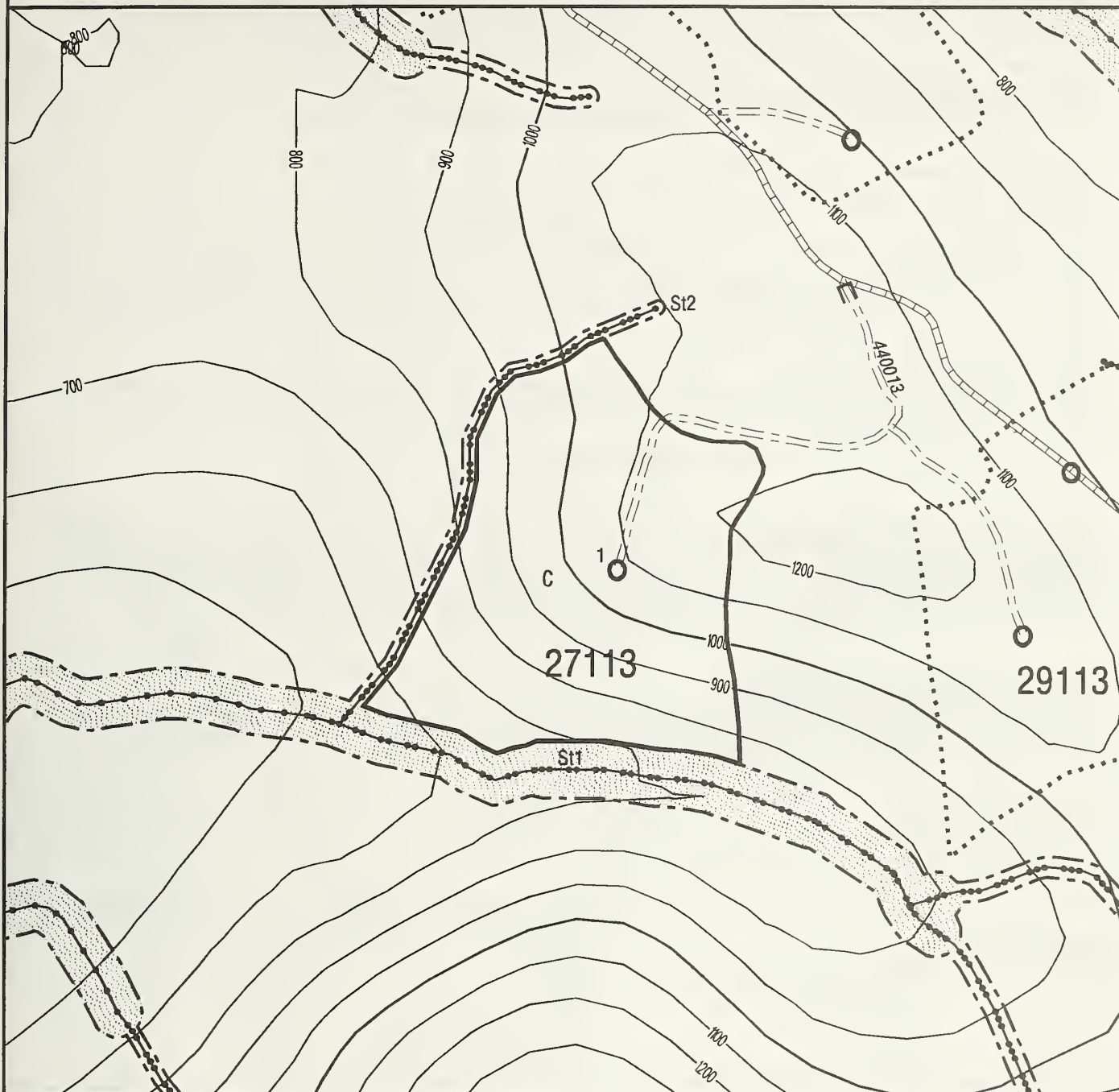


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 165 VCU: 87 UNIT: 27113 ALTERNATIVE(S): 2 4 5 7

ACRES: 39.23 TOTAL NET MBF: 1133 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 27 ROLL NO.: 888 PRINT NO.: 153



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

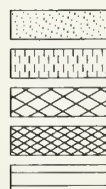
HE = HELICOPTER  
SV = SHOVEL  
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

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## UNIT IDENTIFICATION

UNIT #: 29101

MAP: 125

## STAND CHARACTERISTICS

Lower to mid elevation stand of W. hemlock series. Volume class 5 & 6, composed of large sawtimber with average defect and high mortality. Stand structure is a mosaic of uneven and 2-storied, with overstory age 350-400 years, and snags distributed throughout. East-facing slopes are moderately steep with soil drainage moderately poor. Understory is blueberry with common skunk cabbage and some devils club. Advanced conifer regeneration is common, but of poor quality and vigor. Regeneration potential is moderate to high and potential productivity is high. Windthrow is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Running skyline with 7/8 in lines. (2) Downhill yarding. (3) Tail trees required. (4) Partial cut not feasible. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: High. (2) Not seen.

**Soils / Geology:** (1) Unstable v-notches. Unit reconfigured to avoid these areas. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1 (HC) - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** (1) Marbled murrelet and N goshawk surveys were negative. (2) Recommend leaving green reserve trees and snags for vertical structure and other wildlife habitat values. (3) Suspected red tail hawk nest not found. (4) Canadian goose seen in beaver ponds east of unit. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Provide a programmed timber yield.
- (6) One end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative for this small patch because partial harvest is of poor feasibility because of downhill yarding. Blowdown of reserve trees would be likely in a clearcut with reserves and other partial cutting methods, and there would be no conflict with visuals or need to enhance soil mixing to forestall podsol formation over and above that provided by a clearcut. Clearcut is the most optimal method for timber yield and subsequent productivity, while still meeting resource objectives. Defer treatment would not provide a timber yield and would not replace a decadent stand with high growth potential with a young and vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit consists of the southern-most setting of a larger paper-plan unit which was dissected into two units, eliminating the central setting due to soil and slope instability. All unit boundaries as presently configured are original logging setting boundaries. The south, west, and east unit boundaries border the vegetation transition into low productivity and low volume areas. The proposed road is the east boundary.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Enhance volume and value productivity by adding SS to the stand.
- (3) Schedule PCT and favor SS.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

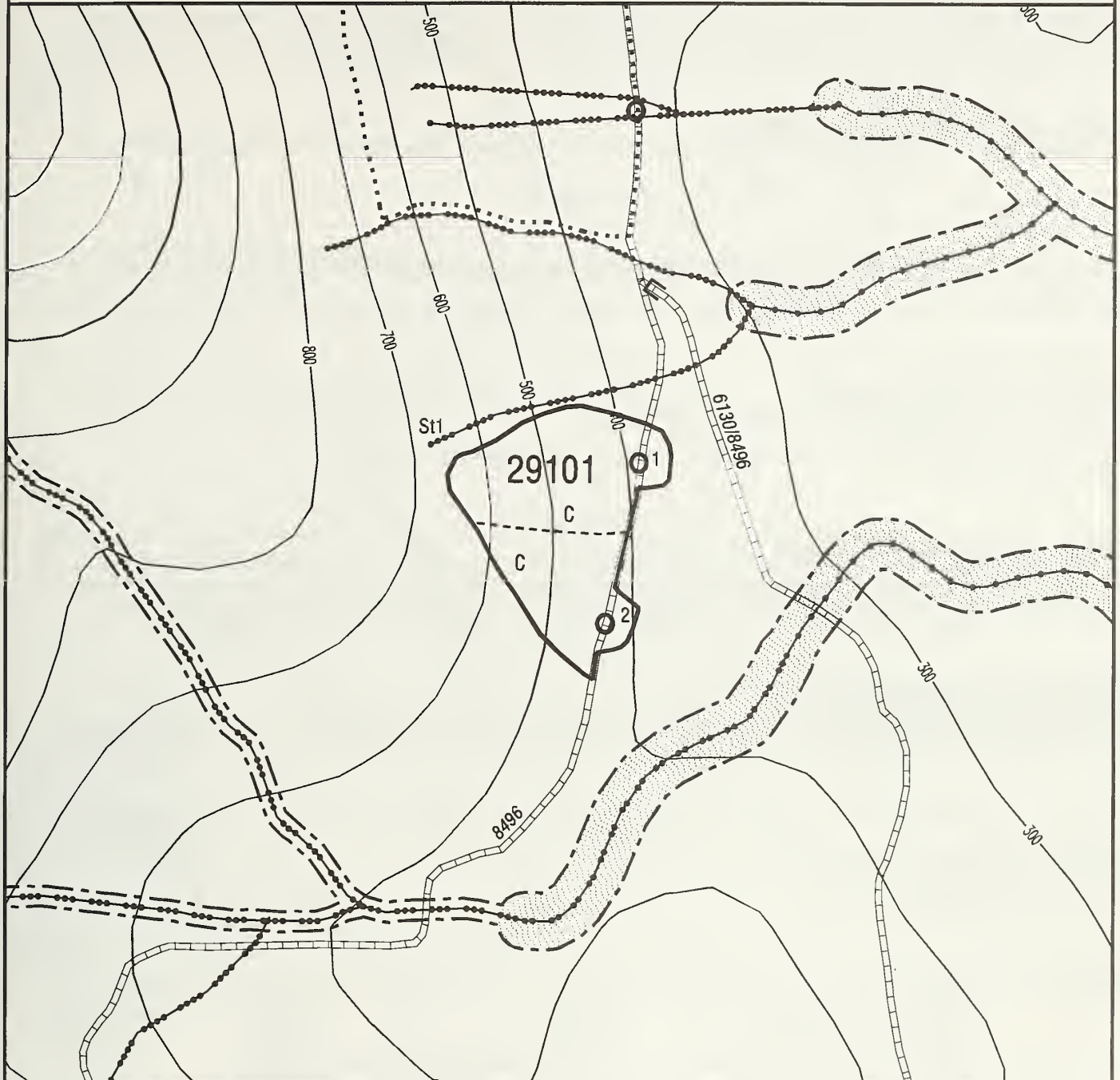


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 125 VCU: 89 UNIT: 29101 ALTERNATIVE(S): 2 4 5 7

ACRES: 14.19 TOTAL NET MBF: 407 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 54 ROLL NO.: 684 PRINT NO.: 181



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29102

MAP: 137

## STAND CHARACTERISTICS

Mid elevation stand of W. hemlock series, volume class 5, composed of large sawtimber with high defect and average mortality. There is w hemlock yellow cedar series on transitions that has some good quality cedar. Stand structure is uneven with poor vigor and high mechanical defect in the mature understory; overstory age is 300 to 400 years. Northeast-facing slopes are moderately steep with moderately well drained soils. Understory is very open, with blueberry and scattered shield fern. Advanced conifer regeneration is present only in small groups under canopy gaps created by windthrow, overall less than 10% cover. Regeneration potential is high and potential productivity is high.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Small slackline required (2) Heavy partial cut feasible. (3) Guylines required outside unit at landing #2, with tiebacks required. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: Intermediate. (2) Not seen.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c.

**Wildlife:** (1) Surveys for N Goshawk and marbled murrelet were negative. (2) Recommend leaving green reserves and snags for vertical structure and other wildlife habitat values.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (4) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves was the selected alternative because it is an efficient Rx for harvest economics, regeneration, and timber growth while meeting other resource objectives. Clearcut would not retain wildlife habitat values. Shelterwood with reserves would impede subsequent timber growth and provide less yield. Planned blowdown is not a factor as podsol formation is not a concern in this unit with well-drained soil. Group selection would enter the area more frequently, with potential impacts on water quality, and provide lower production of timber. Defer treatment would not provide a timber yield and would not replace an overmature stand with rapid growing young timber.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Part of the unit as originally conceived was dropped upon field review and adjustment of stream classification. The unit was shortened to the west to leave a logical future unit between 29102 and 29103. The boundary to the southeast follows the vegetation transition from productive timberland into low productivity/volume forest and muskeg areas.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Plant SS to improve value and volume productivity.
- (3) Schedule PCT and favor SS and YC.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

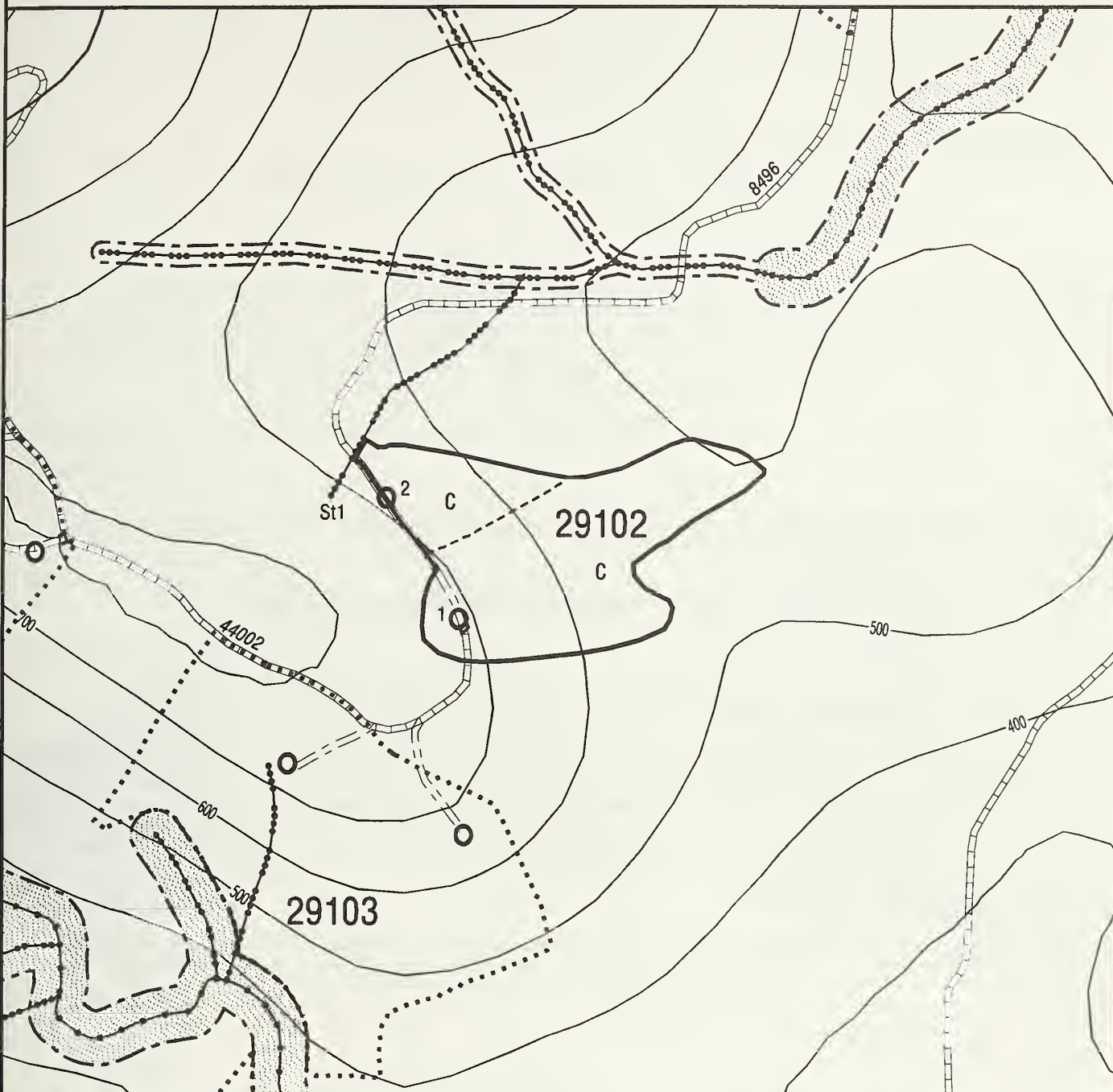


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 137 VCU: 89 UNIT: 29102 ALTERNATIVE(S): 2 4 5 7

ACRES: 22.44 TOTAL NET MBF: 437 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 54 ROLL NO.: 684 PRINT NO.: 180



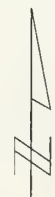
EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
L ROAD BEGINS  
O<sup>1</sup> LANDING & NUMBER  
★ EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1

## UNIT IDENTIFICATION

UNIT #: 29103

MAP: 142

## STAND CHARACTERISTICS

Lower to mid elevation stand of W. hemlock-yellow cedar and W. hemlock series in VC5 - medium sawtimber with high defect and average mortality, and mixed conifer series in VC4 - small sawtimber with average defect and low mortality. The mixed conifer VC4 occurs on the poorer drained soils in the eastern portion of the unit. Stand structure is a mosaic of uneven and 2-storied, with overstory age 300+ years. North to NE facing slopes are moderate to steep with two small v-notch drainages; soil drainage is moderately poor in VC5 and poor in VC4. Understory is blueberry with skunk cabbage common, rusty menziesia heavy in places. Advanced conifer regeneration is light to moderate in VC4; regeneration potential is moderate in VC5, low in VC4. Potential productivity is fair to good. Windthrow is a predominant management concern, as well as cedar decline occurring in VC4 only.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft tower and 1 1/4" skyline configured for gravity return. (2) 2 landings located on two 320 ft temp roads of easy and average construction. (3) Feasible for heavy partial cut. (4) Directional felling required on stream buffer. (5) Skyline extensions through buffer. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: High. (2) Not seen.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 2 (HC) - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Stream 3 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Suitable Canadian goose habitat. (2) Recommend green tree and snag retention for vertical structure and other wildlife habitat values. (3) Suspected N goshawk seen in area but not confirmed.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of commercial timber species.
- (6) Provide a programmed timber yield.
- (7) One-end suspension minimizes sedimentation.
- (8) Skyline extensions through buffer.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative because: (1) Provides a high volume yield from a defective stand with high potential and low current net productivity; (2) Reserve tree selection provides large defective hemlock and yellow cedar and Sitka spruce of good phenotype for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts. Logging systems feasibility is good for a heavy partial cut. Clearcut would provide a 5-10% higher timber yield but less regeneration of the higher valued and longer lived species without planting and would not ameliorate the impacts to visual or wildlife habitat resources as well as clearcut with reserves. Shelterwood with reserves, selection, and sanitation salvage are of questionable engineering feasibility without shifting to helicopter yarding, poorer economic choices, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The north west boundary is the proposed road and follows a transition into low productivity and muskeg. The northeast boundary is a setting break that allows for a future unit between 29103 and 29102. The southeast boundary is located on a transition to low productivity forest. The southwest boundary is a 100 ft TTRA buffer on Class I and II fish streams. The west boundary is a yarding setting boundary that leaves a future unit between 29103 and 29106.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance
- (2) Schedule PCT and favor SS and YC.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

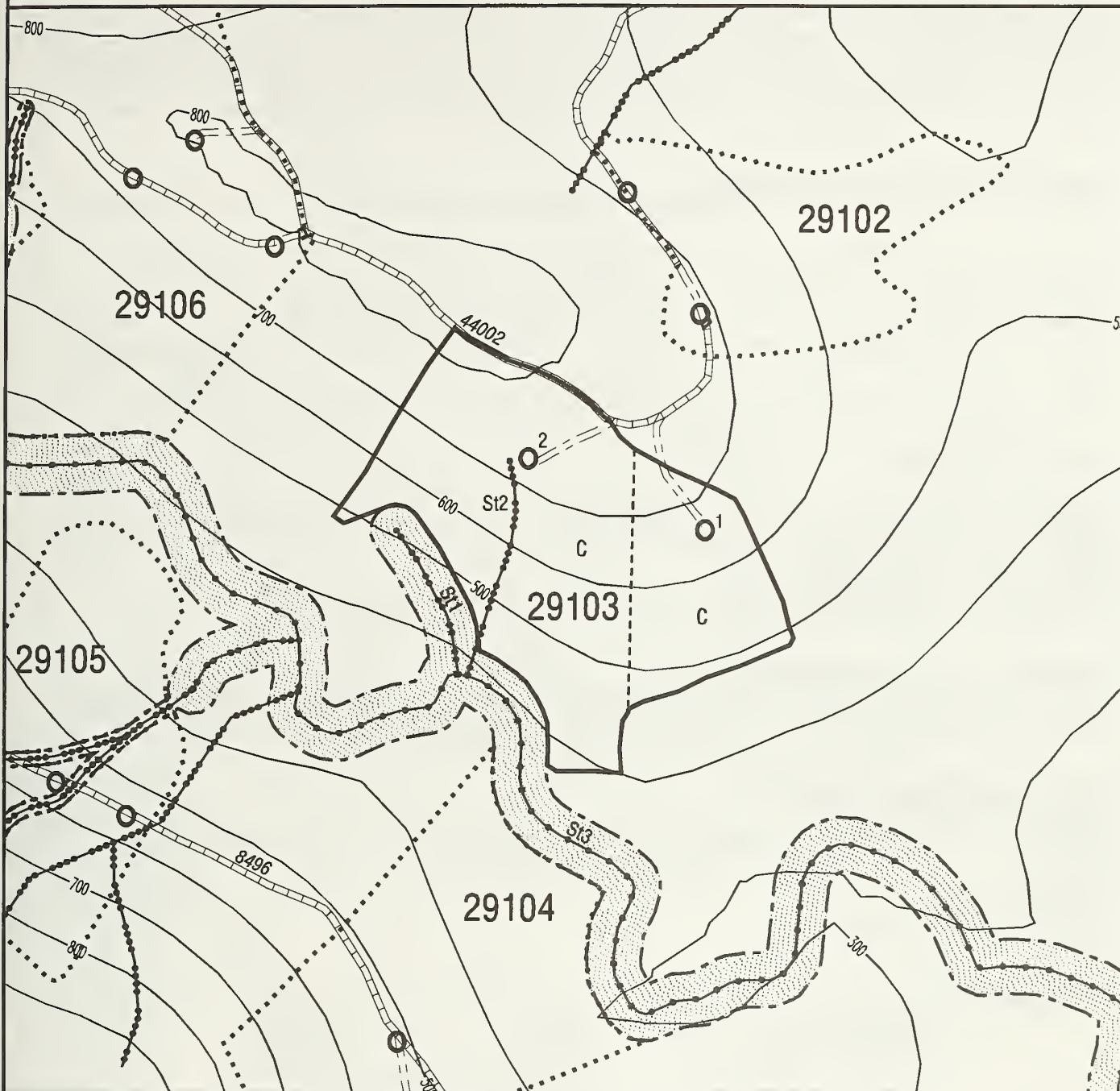


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 142 VCU: 89 UNIT: 29103 ALTERNATIVE(S): 2 4 5 7

ACRES: 40.47 TOTAL NET MBF: 684.3 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 54 ROLL NO.: 684 PRINT NO.: 180



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29104

MAP: 146

## STAND CHARACTERISTICS

Lower to mid elevation stand of large sawtimber in the western hemlock series with areas of western hemlock-yellow cedar series. The upper unit is VC 6 and the lower unit VC 4 with a small inclusion (< 3 acres) of low productivity forest land near the northeast corner. VC4 on the lower east aspect is large sawtimber with extremely high defect and few snags. VC6 on the upper slope is large sawtimber with low defect, high quality logs, and average mortality. The low productivity inclusion is small sawtimber with average defect and mortality. Stand structure is functionally even-aged except in the low productivity inclusion. Overstory age is 300 plus years. Soils on the predominantly northeast aspect are moderately steep with moderately poor to moderate soil drainage except poor where low productivity. Understory is blueberry with skunk cabbage in VC 4. VC 6 is blueberry with shield fern and devils club. Advanced conifer reproduction occupies less than 20% understory cover. Regeneration potential is high and potential productivity is high to moderate except for low and fair in the low productivity area.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft slackline with 1 1/8 in skyline. (2) Partial harvest not feasible and snag retention a safety issue. (3) Tail trees on the east boundary.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High. (2) Not seen from ferry routes.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** Stream 1 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Suitable for Vancouver Canadian goose habitat. (2) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Maintain diversity of commercial timber species.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut was the selected alternative because it provides the highest volume yield at the lowest cost, while still meeting resource objectives. Other even-aged alternatives were not indicated because of poor feasibility for partial harvest, less yield, and poorer projected establishment and growth. Group selection would impact the stand more frequently and provide less yield. Defer treatment would not regenerate a stand with good quality timber and moderate to high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary is a TTRA Class I stream buffer. The south, west, and northwest (below the road) boundaries follow the transition to low productivity forest. The northwest boundary above the road is a logging setting with a future unit retained between 29104 and 29105.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Schedule PCT to adjust stocking and favor SS and YC.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

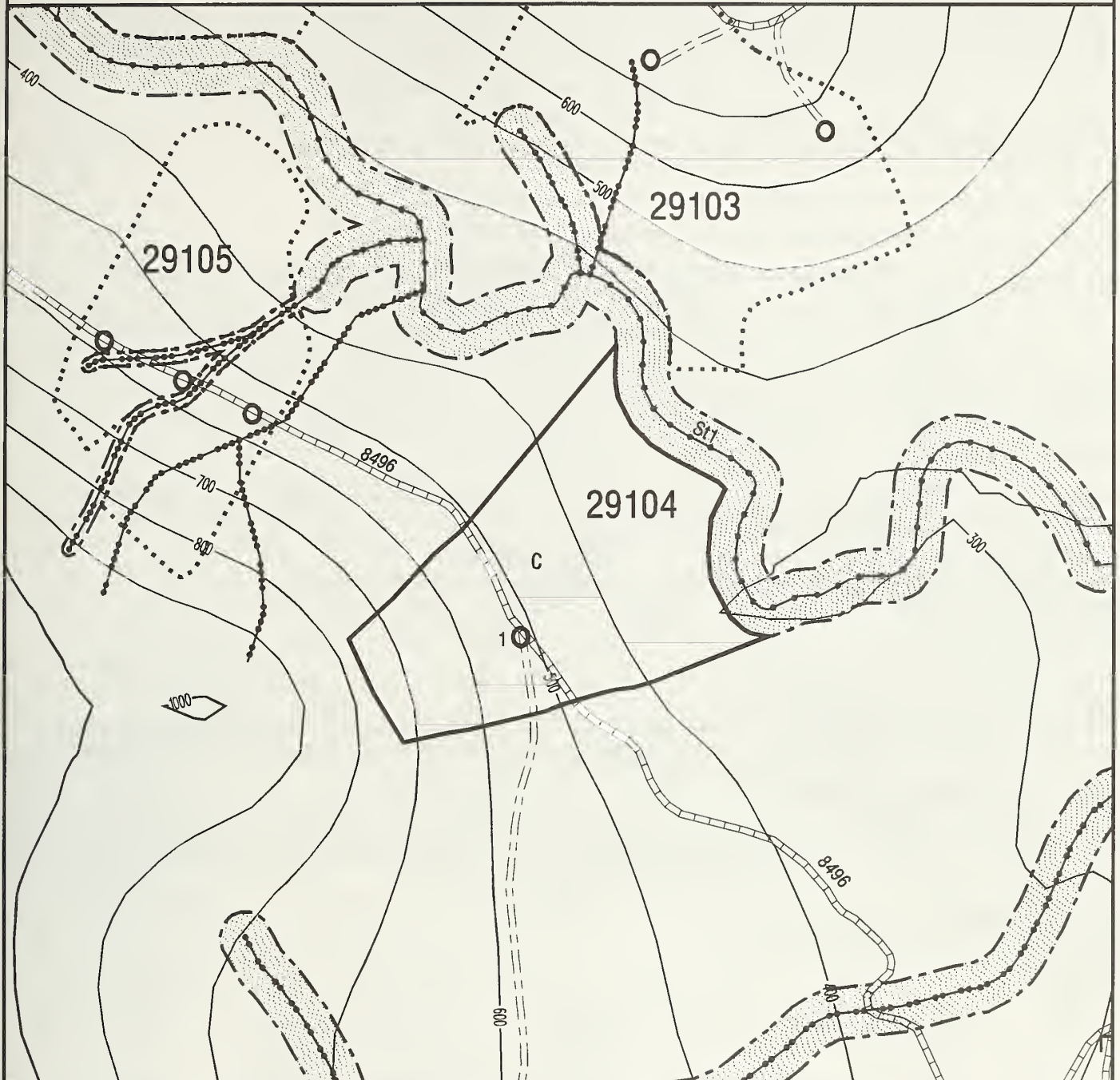


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 146 VCU: 89 UNIT: 29104 ALTERNATIVE(S): 2 4 5 7

ACRES: 33.92 TOTAL NET MBF: 704.2 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 205



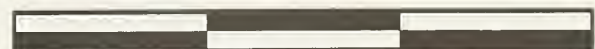
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29105

MAP: 144

## STAND CHARACTERISTICS

Lower to mid elevation stand of large sawtimber in the western hemlock and western hemlock-yellow cedar series. Defect is low to average and mortality is average to high. Mosaic of VC 4, VC 5, VC6, and a 2 acre inclusion of low productivity: VC 6 upper slope, VC 4 and low productivity midslope, and VC 5 lower slope near the riparian buffer. Stand structure is functionally even-aged with overstory age 250-300 years. The northeast aspect is steep in the VC 6 and gentle to moderately steep with two v-notch class III drainages. Soil drainage is moderate to moderately poor. Understory is blueberry with skunk cabbage, devils club, and rusty menziesia on lower slopes. Advanced conifer reproduction occupies less than 20% of potential growing space. Regeneration potential is high and potential productivity is moderate to high.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft slackline with 1 1/4 inch skyline. (2) Partial harvest not feasible and snag retention a safety hazard. (3) Skyline extensions required through Class II stream buffer to obtain partial suspension and reach timber over blind lead BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High. (2) Not seen from ferry route.

**Soils / Geology:** (1) Small slide in unit limits road location. (2) Exclude Hazard Class 4 soils from timber harvest. BMP 13.5.

**Fisheries / Watershed** (1) Streams 1, 2, 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Streams 3 and 4 - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 5 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 6 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A

**Wildlife:** (1) Suitable woodpecker habitat. (2) Recommend green tree and snag retention for vertical habitat structure and other wildlife habitat values.

**Cultural / Recreation / Subsistence:** No concern.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of commercial timber species.
- (6) Exclude Hazard Class 4 soils from the commercial timber base.
- (7) Provide a programmed timber yield.
- (8) Skyline extensions through stream buffer.
- (9) Skyline with Partial Suspension; Full Suspension not feasible.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because it provides the highest volume yield at the lowest harvest cost and provides the best conditions for regeneration and subsequent productivity. Other evenaged methods were not selected because of poor logging feasibility. Group selection would impact the stand more frequently and provide less yield. Defer treatment would not regenerate a stand with moderate to high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The northeast boundary is a TTRA Class I and II stream buffer. The upper southeast boundary is a setting break to a future unit between 29105 and 29104. Some windthrow should be expected in the leave strip. The northwest boundary is the setting break to a future unit. The south boundary breaks where slopes are greater than 70% leaving a fringe of timber between the unit and low-site/muskeg areas along the upper ridge.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Planting YC and SS to improve volume and value productivity.
- (3) Schedule PCT, favor YC and SS.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy and certification	200-400 trees/acre	Silviculturist

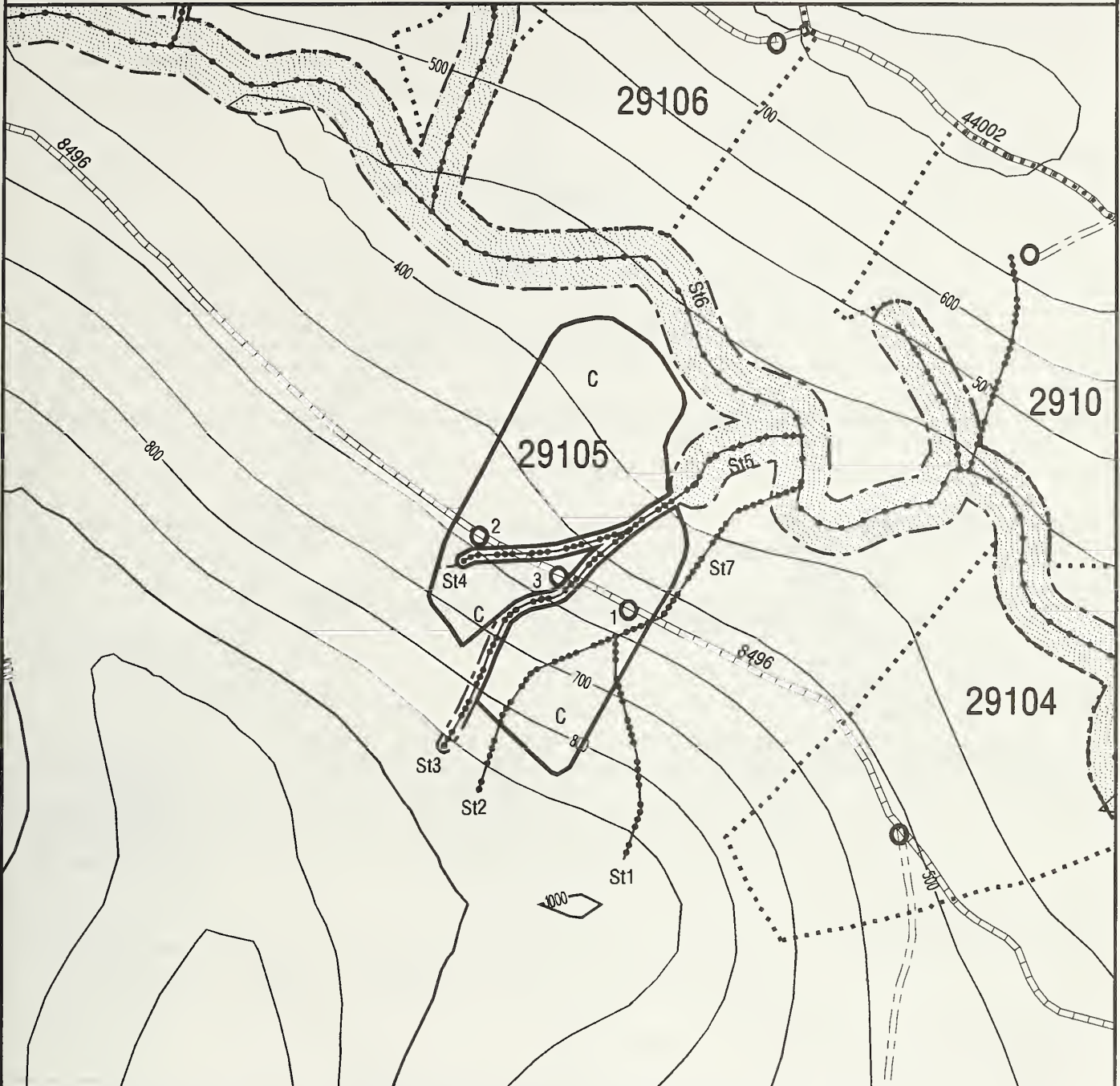


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 144 VCU: 89 UNIT: 29105 ALTERNATIVE(S): 2 4 5 7

ACRES: 26.74 TOTAL NET MBF: 614.2 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 205



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

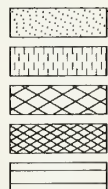
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29106

MAP: 131

## STAND CHARACTERISTICS

Mid to upper elevation stand of medium to large sawtimber in the western hemlock and western hemlock-yellow cedar series. VC 4, VC 5, and VC 6 occur in a mosaic and occurrence is associated with moderately poor to moderate soil drainage and gentle to moderately steep slopes, respectively. The stand is dense to moderately open with YC in clumps and concentrated in VC 4, and SS scattered across the unit. Defect and mortality are average to high with green culls, dead topped trees, and snags scattered throughout the stand. Stand structure is functionally even-aged with overstory age over 300 years. The south to southwest aspect is moderately steep with two small V-notch class III drainages. Understory is blueberry and occasional rusty menziesia with skunk cabbage most common in VC 4 and shield fern and devil's club most common in VC 6. Advanced conifer reproduction occupies less than 20% of growing space. Regeneration potential is high and potential productivity is high to moderate. Dwarf mistletoe is present but not abundant and windthrow is also a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Large and small slacklines and gravity outhaul proposed. (2) Heavy partial harvest feasible below landings. (3) Skyline extensions required through buffers. (4) Directional felling required to protect stream buffers. 3000 feet of temporary roads required. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC High. (2) Background 12.5 mile view from ferry route.

**Soils / Geology:** (1) Hazard Class III soils in unit. (2) Low productivity forest soils. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1, 3b, 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 2 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Stream 3a (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 12.6, 12.6a and 13.16.

**Wildlife:** (1) N Goshawk and marbled murrelet surveys had no response. (2) Recommended green tree and snag retention for vertical habitat structure and other wildlife values. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and a poor understory.
- (2) Improve timber volume and value productivity.
- (3) Reduce sediment yield to fish bearing streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Exclude low productivity forest soils from commercial timber base.
- (6) Mitigate background visual impact to ferry route.
- (7) Maintain diversity of commercial timber species.
- (8) Provide a programmed timber yield.
- (9) Skyline extensions through stream buffer required.
- (10) Skyline with One End Suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut and clearcut with reserves are the selected alternatives because: (1) Provides a high volume yield from a defective stand with high potential and low current net productivity; (2) Reserve tree selection provides large defective hemlock and yellow cedar and Sitka spruce of good phenotype for vertical and cavity nesting habitat structure. (3) Seed sources are retained for the higher valued timber species. (4) Visual impacts of harvest are softened by retention of reserve trees and enclaves. Clearcut with reserves would be limited to the VC 4 areas of the stand where soil drainage is mod poor and podzol formation is a concern. Logging systems feasibility is good for a heavy partial cut. Clearcut alone would provide a 5% higher timber yield but regeneration of the higher valued and longer lived species would be less favorable and impacts to visual or wildlife habitat resources would be greater. Group selection would impact the stand more frequently and provide less yield. Defer would not provide a timber yield and would not regenerate a unit with high to moderate potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The west boundary buffers a large Class III V-notch stream. The south boundary is a TTRA Class I stream buffer that extends into the lower center of the stand to protect a complex Class II tributary. The north boundary borders low-site and muskeg areas. The northwest and northeast corners of the unit were modified to exclude low productivity forest. The east boundary is the logging setting boundary that leaves a logical unit between 29106 and 29103. Some windthrow is expected in the leave strip.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and planned blowdown of reserve trees in VC 4.
- (2) Schedule PCT and favor SS and YC.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

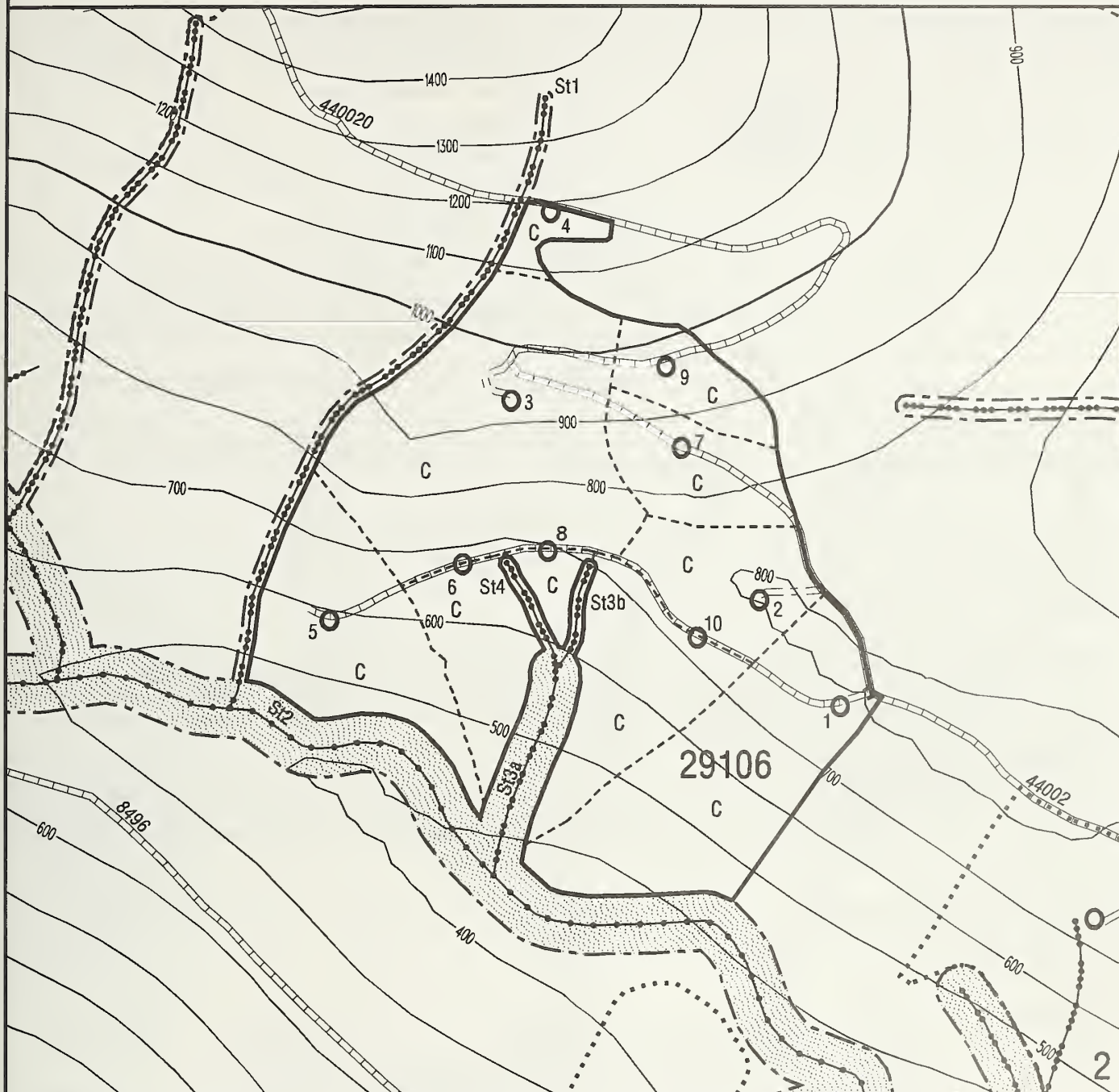


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 131 VCU: 89 UNIT: 29106 ALTERNATIVE(S): 2 4 5 7

ACRES: 93.34 TOTAL NET MBF: 1978.7 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 176



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

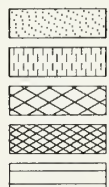
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29107

MAP: 124

## STAND CHARACTERISTICS

Upper elevation stand of large sawtimber with extremely high defect and average mortality in VC 5 and VC 6. Sitka spruce series, specifically the Sitka spruce-Mtn hemlock plant association is predominant in VC 6 and VC 6. VC 4 is small sawtimber in the western hemlock-yellow cedar series with average defect and low mortality. Stand structure is functionally even-aged in spruce type, uneven and 2-storied in HC type. Overstory age is over 300 years. South to west aspects are moderately steep to steep. Soils are well drained in SS series and poorly drained in WH-YC series. The blueberry understory is sparse in the SS series and dense with abundant skunk cabbage in WH-YC series. Advanced conifer regeneration is sparse and in poor condition. Regeneration potential is low to moderate. Potential productivity is moderate to high. Regeneration potential and stream instability are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems.** (1) 90 ft slackline. (2) Heavy partial harvest feasible. (3) Skyline extensions through stream buffer required. (4) directional felling by stream buffer recommended. 500 feet of temporary roads required. BMP 13.9

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High. (2) Background view at 12.5 miles from ferry route and 6 miles from north arm of Farragut Bay.

**Soils / Geology:** (1) Stability of Class III stream channels. (2) Hazard Class IV soils and snow avalanche shoots, deleted from unit. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1 and 2 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 12.6, 12.6a and 13.16. (2) Streams 3 and 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c.

**Wildlife:** (1) Possible Northern Goshawk sighting that was not confirmed. (2) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Exclude Hazard Class IV soils from the commercial timber base.
- (7) Provide a programmed timber yield.
- (8) Skyline extension through TTRA buffer required.
- (9) Skyline Yarding with One End Suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative over clearcut because a heavy partial harvest is feasible below the landings and scattered groups of reserve trees and snags will ameliorate the visual impact and retain wildlife habitat structure elements. Shelterwood with reserves was not indicated because soil drainage is generally good and YC and SS regeneration and growth will be more favorable with less shade. Selection and sanitation salvage are not feasible without helicopter harvest and it is doubtful that net increment can be achieved without stand regeneration.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The south boundary is a Class II stream buffer. The west boundary is a Class II stream buffer of a higher order tributary that was upgraded from Class III during field review and the portion of the unit as originally configured west of the stream was dropped. The east boundary buffers a large Class III V-notch. The four running skyline settings to the north were dropped, excluding the area of concern regarding instability of multiple high gradient Class III channels. The northeast boundary was established to exclude > 70% slope with evidence of snow avalanches.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Plant SS and YC to improve volume and value productivity.
- (3) Schedule PCT and favor SS and YC.

## MONITORING PLAN

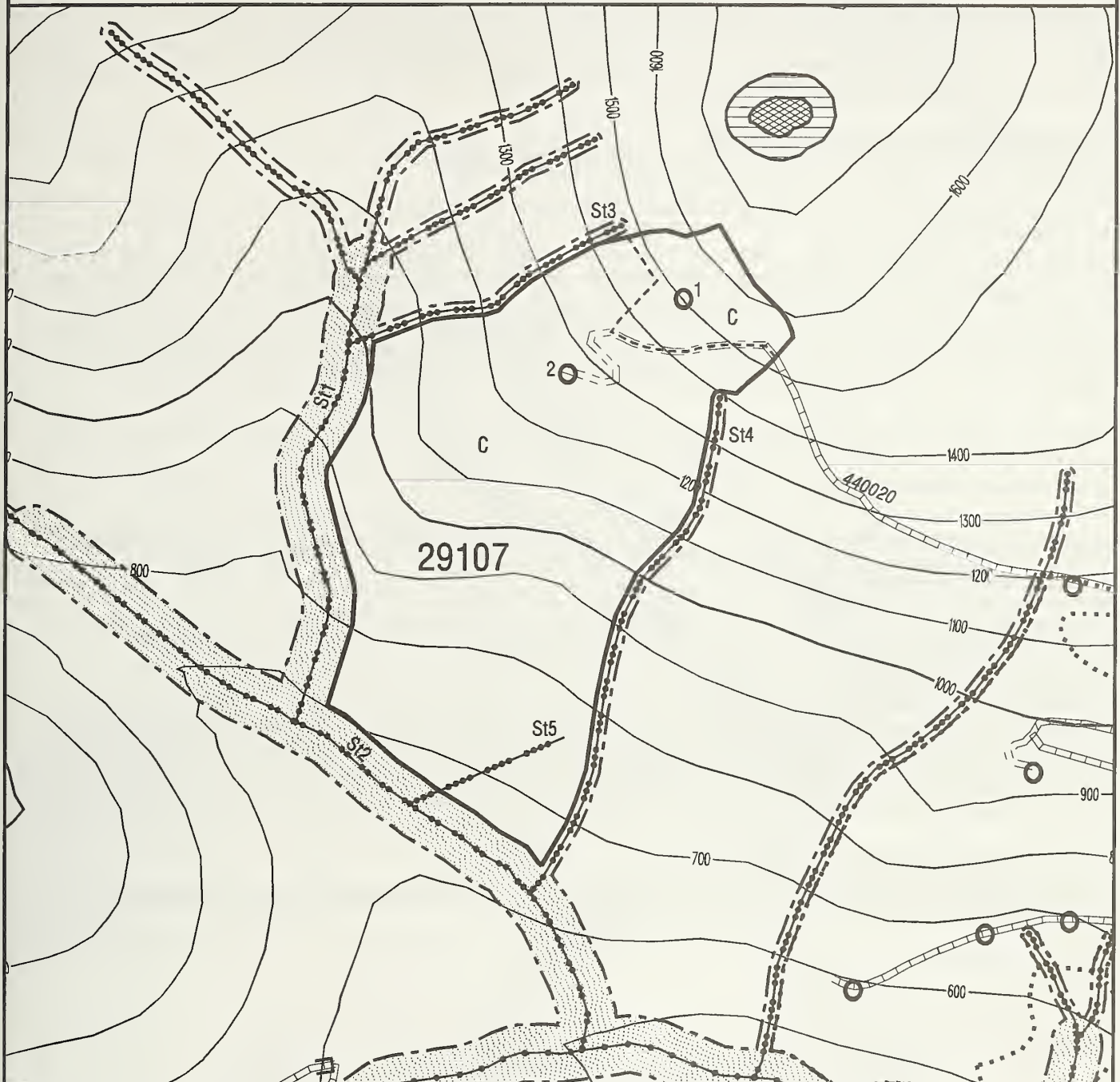
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 124 VCU: 89 UNIT: 29107 ALTERNATIVE(S): 2 4 5

ACRES: 63.23 TOTAL NET MBF: 1259.6 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 176



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

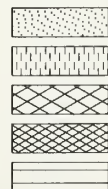
HE = HELICOPTER  
SV = SHOVEL  
C = CABLE

St1 STREAM ID IN NARRATIVE

└─ ROAD BEGINS

○<sup>1</sup> LANDING & NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29111

MAP: 134

Note: Alt. E excludes helicopter portion of unit.

## STAND CHARACTERISTICS

Mid to upper elevation stand of medium sawtimber with average defect and mortality. Predominant forest series is W hemlock-yellow cedar with W hemlock with a spruce component across the stream in the northeast portion of the unit. The VC 4 occurs on the flatter west and southwest portion of the stand. Low site areas are on the west and southwest unit fringe, contiguous with areas excluded from the stand during field review. Stand structure is functionally even-aged with more open canopies in the VC 4 and low site areas. Most merchantable timber is greater than 240 yrs old. Low site inclusions are areas of poor drainage are indicated by deer cabbage. Potential productivity is poor to good. Blueberry and skunk cabbage are common understory species. Advanced reproduction is poor to fair and occupies less than 20% of growing space. Windthrow and soil stability are management concerns by the Class III stream courses.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 Ft tower with complex guylines and anchors required for southwest setting; partial harvest is not feasible. (2) Helicopter only feasible harvest method for northwest portion of unit. (3) Helicopter drop zone would occur at landing 2. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; (2) VAC: High; (3) Partially seen in background from ferry route (+/- 12 mi), negligible impact.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall rescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 2b,3 (HC6) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 2a (MM1).- See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Stream 4 (MM2) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6,12.6a and 13.16.

**Wildlife:** (1) Recommend leaving snags and green reserve trees for vertical structure diversity and other wildlife habitat values. (2) Suitable Canadian goose habitat. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams.
- (4) Maintain vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of merchantable timber species.
- (6) Provide a programmed timber yield.
- (7) Skyline yarding with one-end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because: (1) Provides a high volume yield from a defective stand with high potential and low current net productivity; (2) Cable logging systems feasibility is poor for partial harvest, and (3) clearcut is more favorable for survival and growth of planted YC. The higher volume north and east extent of the unit was modified to helicopter harvest because of overriding concern to minimize sediment yield. Clearcut with reserves or shelterwood with reserves would provide less timber yield and subsequent growth and poorer conditions for YC regeneration. Visual impact is a negligible management concern. Group selection is feasible on the helicopter ground but was not selected for the same reasons that the even-aged with reserves Rx are not favored. Defer would not regenerate an overmature stand with a defective overstory.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundary along the west and south is located to exclude low productivity muskeg fringe and provide suitable tail anchors. The unit boundary to the east and upslope is a class III stream buffer. The northwest boundary is the logical boundary for cable yarding.

### Forest Productivity Activities:

- (1) Plant YC and SS.
- (2) Soil mixing and warming from logging disturbance.
- (3) Schedule PCT to adjust stocking and favor YC and SS.

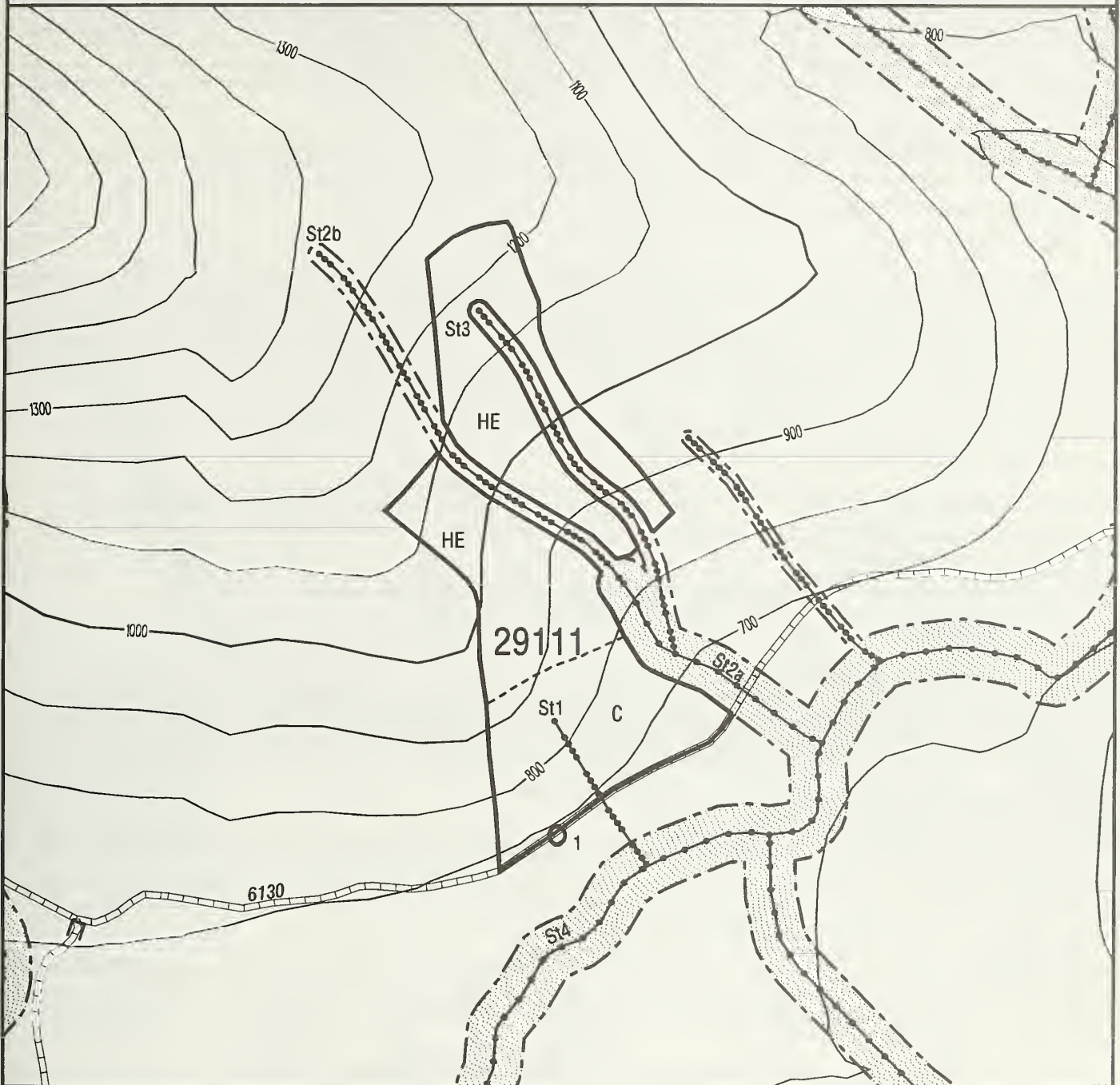
## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 134 VCU: 89 UNIT: 29111 ALTERNATIVE(S): 2 4 5 7 SETTINGS HE EXCLUDED IN ALT. 7  
 MAXIMUM ACRES: 27.8 TOTAL NET MBF: 544.7 QUAD(S): SUMA4 QUARTER QUAD(S): NW  
 PHOTO INFO YEAR: 1989 FLIGHT LINE: 27 ROLL NO.: 888 PRINT NO: 151



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29112

MAP: 155

## STAND CHARACTERISTICS

Mid elevation stand of medium sawtimber that is a timbered island amid muskeg and low site areas (some of which were deleted during field review). Forest series are western hemlock in VC 5 on west facing slope blending into a mosaic of WH-YC and mixed conifer in poorly drained inclusions. Defect and mortality is average and there is no cedar decline. Advanced regeneration is poor and occupies less than 20% of growing space. Stand structure is functionally even-aged. Most merchantable timber is > 350 yrs old. There is a minor amount of recent windthrow and a minor amount of mistletoe is present. Soil drainage is moderate on the better drained west aspect with VC 5 and moderately poor or poor, as evidenced by deer cabbage on the low site inclusions. Blueberry is the predominant understory species with some devil's club on steeper and better drained sites. Potential productivity is fair to good

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Partial harvest feasible. (2) Mix of running skyline and slackline systems required for 5 settings. (3) Complex guyline anchors, slackline extensions, and tail trees may be required. (4) 1330 ft of temporary spur roads required BMP 13.9

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: High

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 2 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 3 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A.

**Wildlife:** (1) Potential Mtn Goat travel corridor. (2) Suitable Canadian goose habitat. (3) Recommend leaving green reserve trees and snags for vertical structure diversity and other wildlife habitat values. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Maintain diversity of commercial tree species.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Design alternative silviculture systems to provided operational demonstrations of adaptive management trials.
- (6) Provide a programmed timber yield.
- (7) Suspended Log Yarding.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut settings 2 & 5 / Clearcut w/Reserves settings 1, 3 & 4. This harvest pattern provides a contrast between two regeneration methods and provides for vertical habitat diversity. This adaptive management trial will test windthrow and regeneration patterns and yellow cedar and Sitka spruce regeneration. Integration of shelterwood with reserves and group selection into this silvicultural pattern would add complexity to an already complicated harvest system design, would harvest less timber, and would not meet the integrated resource objectives any better than the selected alternatives. Defer would not provide a timber yield and would not regenerate a unit with low watershed impact.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit boundary location follows the edge of the productive timberland amid the mosaic of muskeg and low site areas and logical yarding limits. Unit size was reduced from the paper plan by dropping the low site area in the extreme NW of the unit as proposed in the paper plan. A timbered fringe will be left on unit margins.

### Forest Productivity Activities:

- (1) Plant YC and SS
- (2) Soil mixing and warming from logging disturbance and blowdown of retention trees.
- (3) Schedule PCT and favor YC and SS for improved species diversity and timber value productivity.

## MONITORING PLAN

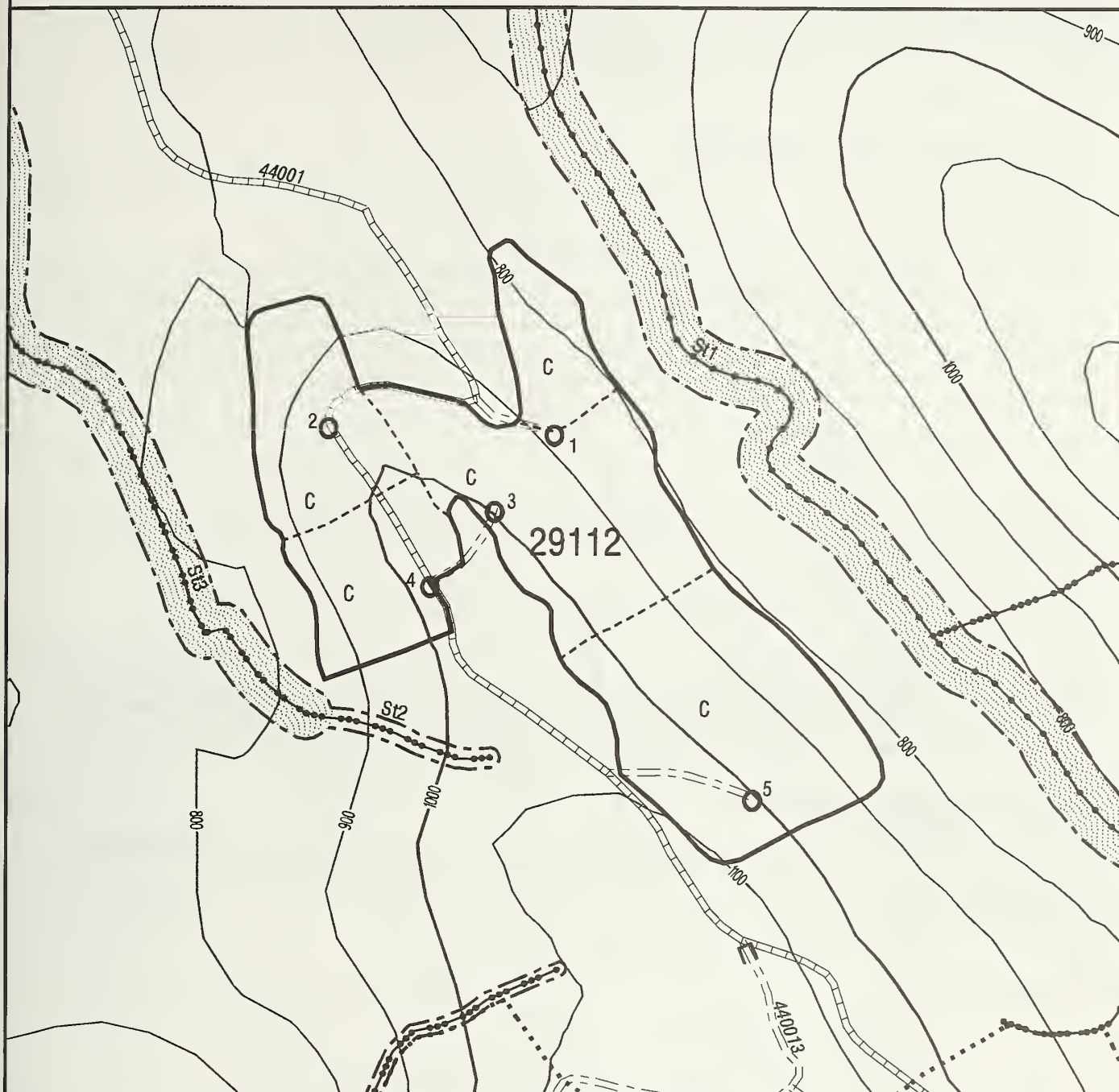
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist
Year 70 to 90	Commercial Thinning	Residual 160 sq ft /ac	Silviculturist



MAP NO.: 155 VCU: 89 UNIT: 29112 ALTERNATIVE(S): 2 4 5 7

ACRES: 66.47 TOTAL NET MBF: 1163 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 27 ROLL NO.: 888 PRINT NO.: 153



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

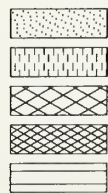
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○<sup>1</sup> LANDING & NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29113

MAP: 167

## STAND CHARACTERISTICS

Mid to upper elevation stand of small to large sawtimber with average defect and mortality. Western hemlock-yellow cedar series predominates with small inclusions of mixed-conifer series near the west boundary where timber merges into low-site and muskeg. Upper slopes tend to western hemlock series. Stand structure is functionally even-aged with a relatively young 200-250 year old overstory component. Snags are scattered throughout the unit. Aspects are SW and NE, the unit topographically bisected by a SE trending ridge in the western-third of the unit. Slopes are moderately steep with intermittent benches, soil drainage moderately poor to moderate. Understory vegetation is primarily blueberry and rusty menziesia with skunk cabbage common, and some shield fern in better drained microsites. Little advanced conifer reproduction is present. Regeneration potential and potential productivity are good.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft slackline required. (2) 1500 ft of temporary road required. (3) Complex guyline anchors, tail trees, and skyline extensions outside unit boundaries may be required. (4) Partial harvest is not feasible. (5) Potential rock pit on knob behind landing #3. (6) Small area below road in NW to be end-lined with cat. BMP 13.9

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High. (2) Unit not seen from ferry routes.

**Soils / Geology:** (1) Productivity and regeneration of low productivity soils adjacent to muskegs.

**Fisheries / Watershed:** (1) Stream 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 2 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6,12.6a and 13.16. (3) Stream 4 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6,12.6a and 13.16. (4) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** (1) Possible mountain goat travel corridor.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Maintain diversity of merchantable timber species.
- (4) Exclude low productivity forest sites from the commercial timber base.
- (5) Design alternative silviculture prescriptions to provide operational demonstrations of adaptive management trials.
- (6) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut was the selected alternative that maximizes logging economics and timber productivity with little conflict with watershed, wildlife, or visual resources. Yellow cedar and vertical wildlife habitat structure will be mitigated by feathered edges favoring cedar retention on unit boundaries as described below. Other even-aged techniques are not indicated because economics, logging system feasibility, and cedar regeneration are more favorable with clearcut. Uneven-aged and intermediate treatments were not selected because of the existing stand structure and logging feasibility. Defer treatment would not regenerate an overmature stand with a favorable mix of high valued species.

## INTEGRATED MANAGEMENT PRESCRIPTION

**Description of Unit Boundary Determination:**

East unit boundary follows edge of productive timberland along low-site/muskeg areas. The lower north boundary follows a Class IV stream buffer. Unit boundaries to north, south, and west were chosen as logging setting boundaries. Buffers to adjacent units to north, west, and south are logical future logging settings.

**Forest Productivity Activities:**

- (1) Plant yellow cedar and favor healthy yellow cedar retention for seed and value increment in feathered edges.
- (2) Soil mixing and warming from logging disturbance and blowdown of residual trees in feathered edge.
- (3) Schedule PCT and favor YC and Sitka spruce for improved species diversity and value productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

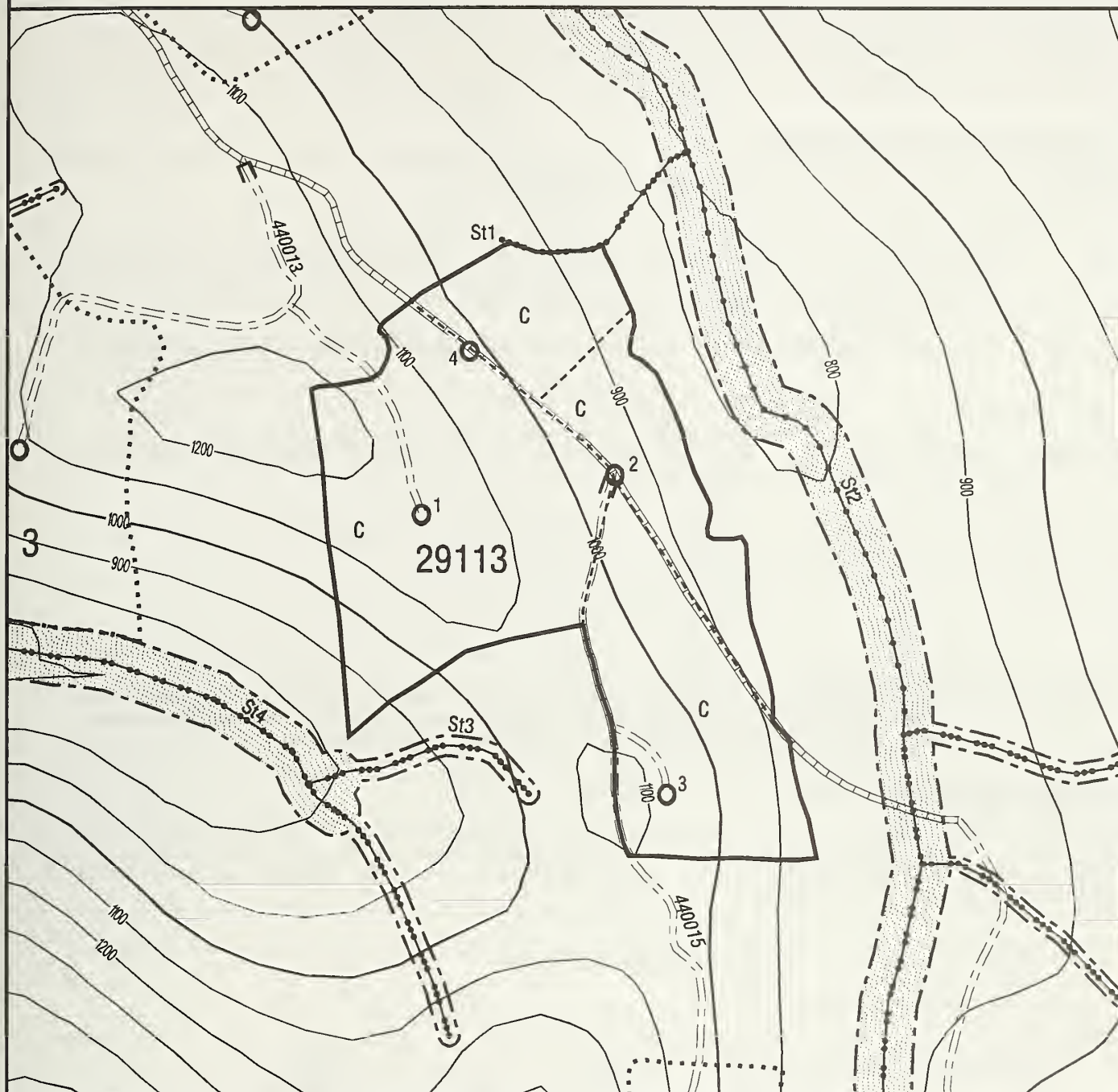


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 167 VCU: 89 UNIT: 29113 ALTERNATIVE(S): 2 4 5 7

ACRES: 71.37 TOTAL NET MBF: 1218.3 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 204



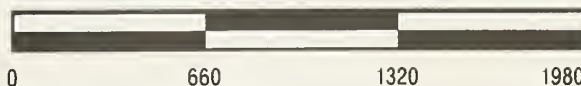
EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29117

MAP: 161

## STAND CHARACTERISTICS

Mid elevation stand of medium to small sawtimber in the western hemlock-yellow cedar and mixed conifer series. Defect and mortality is low to moderate. Yellow cedar composes up to 50% of stand volume with no chronic cedar decline. Stand structure is functionally even-aged with 350 year old overstory. Slopes are moderately steep with soil drainage moderately poor. A Class II stream is located along the southeast to northeast boundary and portions have steep banks with mass wasting evident. V-notches occur within the unit that drain immediately into the Class II. Understory is blueberry with skunk cabbage common throughout. Advanced conifer reproduction occupies less than 20% of growing space. Regeneration potential and potential productivity are moderate. Several small low-site/muskeg islands are located on the bench in the lower unit.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Large and small slackline in unit, mostly downhill yarding. (2) 2160 ft of temporary road within unit with easy construction. (3) Guylines within Class 2 TTRA buffer. (4) Partial harvest is not feasible. (5) Fall trees away from buffer. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: Intermediate. (2) Not seen from ferry routes.

**Soils / Geology:** (1) Low productivity forest and muskeg within unit. BMPs 12.5 and 13.5.

**Fisheries / Watershed:** (1) Streams 1 and 2 (HC6) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Streams 3, 4 and 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c.

**Wildlife:** (1) Suitable habitat for Canadian goose and red breasted sapsucker. (2) Recommend leaving green reserve trees and snags for vertical structure diversity and other wildlife habitat values.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an over mature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of commercial timber species.
- (6) Design alternative silviculture prescriptions to provide operational demonstrations of adaptive management trials.
- (7) Provide a programmed timber yield.
- (8) Suspended Log Yarding.
- (9) Skyline extension through TTRA buffer required.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because partial harvest is not feasible with conventional logging systems and because it is the most efficient method for regeneration of favored species (YC and SS), improved timber productivity, and harvest economics. Stand structure did not indicate an opportunity for uneven-aged or intermediate treatments. Uncut islands will be left around muskeg areas in the unit where compatible with logging systems. Defer treatment would not regenerate an over mature stand with moderate potential productivity and would not provide a timber yield.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Southwest and northwest boundaries are the setting boundaries for conventional logging with helicopter settings occurring adjacent on the upper slope. The adjacent helicopter settings are included in the proposed Stikine helicopter salvage and would otherwise be deferred for future entry. The northeast to southeast boundary follows a TTRA buffer on the Class II stream. A proposed north setting and portions of settings 1 and 2 were deleted when the Class II stream course was upgraded to Class III during field review. Wetland protection--50' buffers around muskegs.

### Forest Productivity Activities:

- (1) Planting YC and SS to maintain cedar component in stand and improve volume productivity respectively.
- (2) Soil mixing and warming from logging disturbance.
- (3) Schedule PCT and favor SS and YC for species diversity and value productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

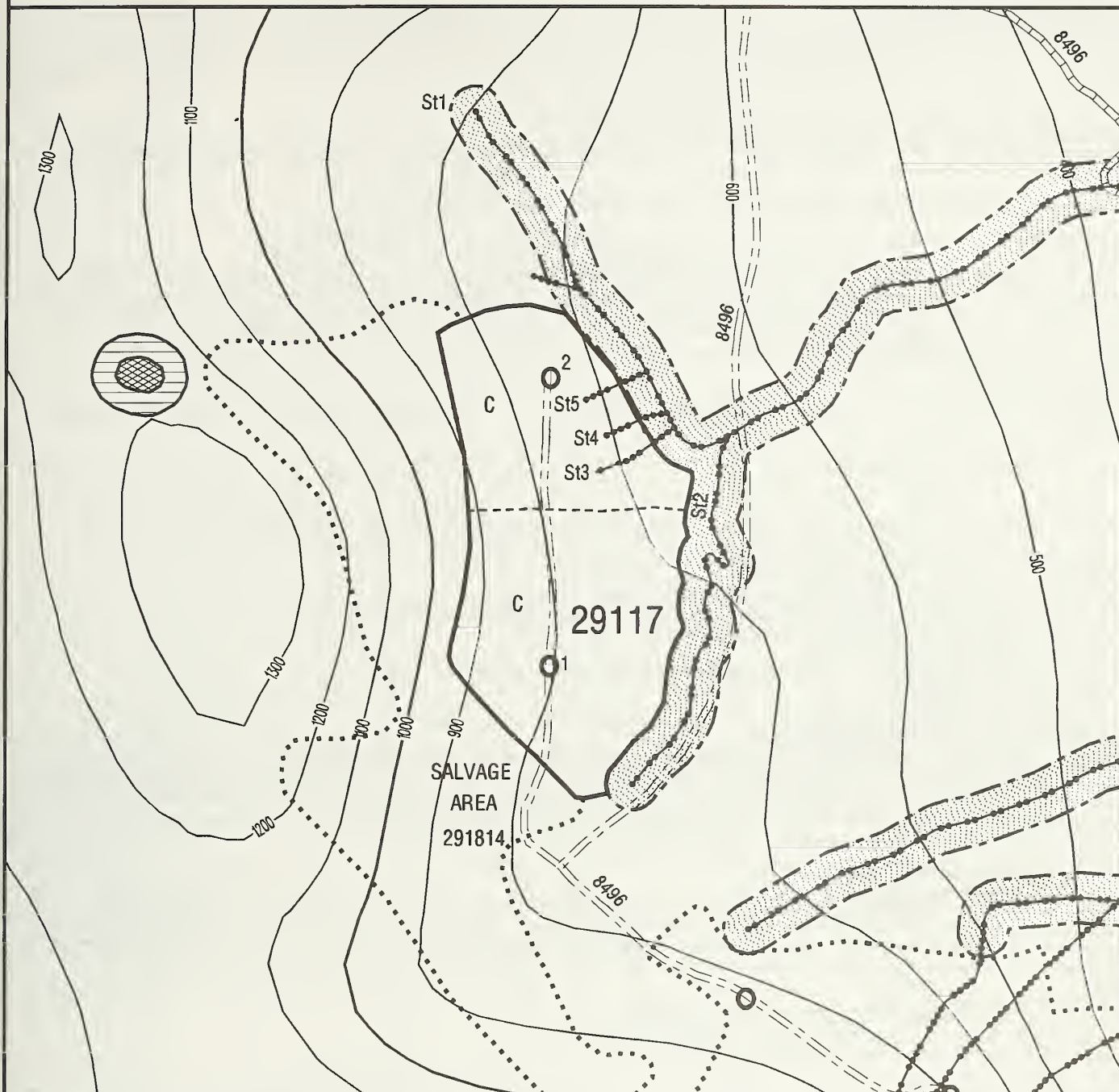


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 161 VCU: 89 UNIT: 29117 ALTERNATIVE(S): 2 4 5

ACRES: 35.77 TOTAL NET MBF: 433.9 QUAD(S): SUMA4 QUARTER QUAD(S): NW

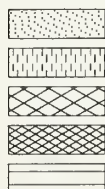
PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 204



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
L ROAD BEGINS  
O<sup>1</sup> LANDING & NUMBER  
★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29119

MAP: 168

## STAND CHARACTERISTICS

Low to mid elevation stand of medium to large sawtimber in the western hemlock-yellow cedar (VC 4 and VC 5) and western hemlock (VC 5 and VC 6) series. Defect and mortality is low to moderate. Stand structure is functionally even-aged with overstory age 200 to 300 years. Slopes are moderately steep, dissected by four Class IV streams and one class III stream with small v-notches, and soil drainage is moderate. Understory shrubs are blueberry with scattered skunk cabbage on swales and benches and devils club and shield fern on steeper slopes. Advanced conifer regeneration is sparse except for a few small pockets in canopy gaps from windthrow. Regeneration potential and potential productivity is moderate to high. Windthrow and soil stability are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Running skyline, large slackline, and small slackline proposed. (2) Heavy partial harvest is feasible and snag retention is a safety concern. (3) Guylines, tail trees, and skyline extensions through stream buffers may be required. (4) Tailtrees required. (5) Fall trees away from buffers. (6) Temp road required. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: Intermediate. (2) Not seen from ferry routes.

**Soils / Geology:** (1) Hazard Class III soils. (2) Productivity and regeneration of low site forest soils. (3) Class IV soils upslope of unit. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1, 4, 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Streams 2 and 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec 3b. (3) Streams 6 and 7 (HC5) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16

**Wildlife:** (1) Recommend leaving green reserve trees and snags for vertical structure diversity and other wildlife habitat values. (2) Surveys for northern goshawk and marbled murrelet had no response.

**Cultural / Recreation / Subsistence:** No concern.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an over mature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams and avoid potential for increased stream temperatures.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Exclude Hazard Class 4 and low productivity forest soils from timber base.
- (6) Maintain diversity of commercial timber species.
- (7) Design alternative silviculture systems to provide operational demonstrations of adaptive management trials.
- (8) Provide a programmed timber yield.
- (9) Suspended Log Yarding.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative because a heavy partial harvest is feasible with minor impact to harvest economics, timber yield, and productivity. Uneven-aged management and intermediate treatment are not options given stand structure and conventional logging systems. Shelterwood with reserves was not selected because planned blowdown would not appreciably reduce podsolization as soils are moderately well-drained and would reduce yield and be unfavorable for harvest economics, cedar and spruce regeneration, and timber growth. No cut buffers were considered for the Class IV v-notches within the unit but are not planned because of high blowdown potential. Defer would not regenerate an over mature stand with high potential productivity and regeneration potential.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Northwest boundary located to buffer Class II stream and excludes a setting from paper plan because most is non-CFL. Retain 50 percent of the shade producing vegetation on the S, SE, SW, and W banks of Class IV streams. Southwest boundary which is the upslope extension of the unit is defined by the break into over steepened and potentially unstable Hazard Class 4 soils. The north to northeast boundary that is the lower extent of the unit is located at a transition into forest land of low volume and poor regeneration and productivity potential. The southeast boundary is located to leave a logical unit between 29119 and 29120. Blowdown may be a problem in this leave strip.

### Forest Productivity Activities:

- (1) Planting YC and SS to maintain cedar component and improve volume productivity respectively.
- (2) Soil mixing and warming from logging disturbance and blowdown of reserve trees.
- (3) Schedule PCT and favor SS and YC for species diversity and value productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

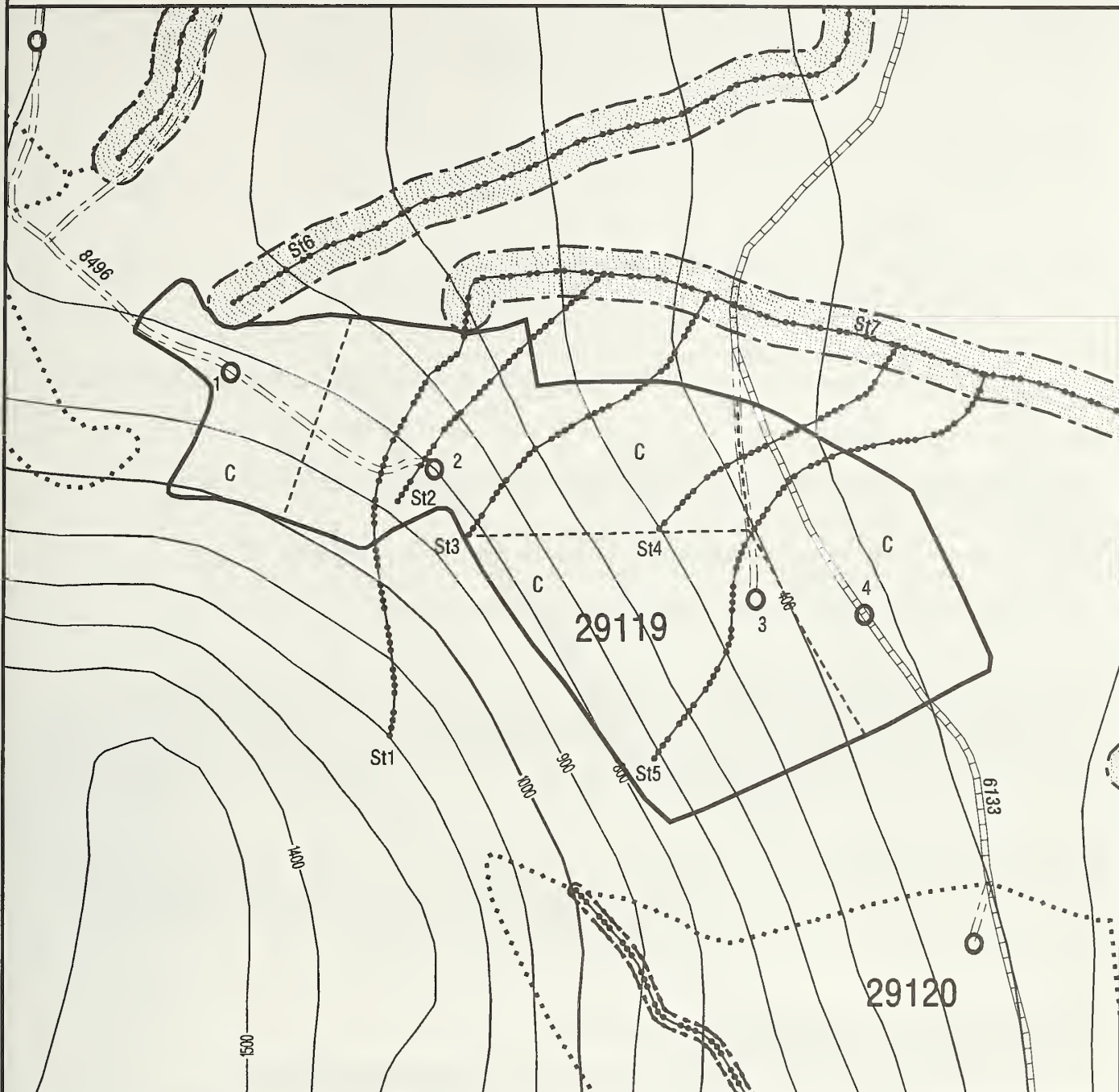


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 168 VCU: 89 UNIT: 29119 ALTERNATIVE(S): 2 4 5

ACRES: 85.68 TOTAL NET MBF: 1934.9 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 204



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
L ROAD BEGINS  
O<sup>1</sup> LANDING & NUMBER  
★ EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29120

MAP: 171

Note: Alt. C excludes helicopter portion of unit.

## STAND CHARACTERISTICS

Low to middle elevation stand of medium to large sawtimber in the western hemlock (2/3 of unit, VC 5 and 6) and western hemlock-yellow cedar series on lower gentle slopes. Defect and mortality is average. Stand structure is functionally even-aged with overstory age 300 to 400 years. Upper slopes are moderately steep and lower slope is moderate to gentle. A Class III stream runs southeast then east through the unit. Soils are moderately well drained on the upper slopes to moderately poorly drained on lower flats. Understory shrubs are dense blueberry, with devils club on steep slopes in central portion of unit and skunk cabbage abundant in the lower unit. Advanced WH reproduction is present in 5-10% of stand. Regeneration potential is high and potential productivity is moderate to high. Hazard Class III and IV soils and road access slopes are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Road access to upper landings not feasible. (2) Unit redesigned as helicopter and conventional small slackline systems. (3) 2100 feet of temporary road required. Helicopter setting not included in Alternative C. Helicopter logs will be flown to landing in unit. BMP 13.9.

**Visual Resource Management:** (1) VOO: Maximum Modification. VAC: Intermediate. (2) Partly seen in background view from ferry route at 10 mi distance; Middleground view of 3 mi from North Arm and of 6 mi from the mouth of Farragut River.

**Soils / Geology:** (1) Hazard Class III soils area identified. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 3 (HC) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c.

**Wildlife:** (1) No response to northern goshawk and marbled murrelet surveys. (2) Recommend leaving green reserve trees and snags for vertical structure diversity and other wildlife habitat values.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature and decadent stand with a poor understory.
- (2) Improve timber volume and value productivity.
- (3) Leave sufficient reserve trees so that unit would meet PR from the mouth of the Farragut River.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Maintain diversity of commercial timber species.
- (7) Design alternative silviculture prescriptions to provide operational demonstrations of adaptive management trials.
- (8) Provide a programmed timber yield.
- (9) Suspended Log Yarding - Helicopter setting.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative for the conventional skyline setting because a partial cut is feasible and stand conditions indicate that planned blowdown may lessen podzolization in VC 4 and VC 5 on the lower slopes where soil drainage is moderately poor. Reserve trees will also include relatively windfirm YC and SS seed trees. Shelterwood with reserves is the selected alternative for the helicopter portion of the unit. It has attributes similar to clearcut with reserves, but would keep a greater density of the mature stand to provide vertical structure, ecological/soil functions, and protection of soil and water resources. The contrast between two silvicultural methods and two logging systems will provide an adaptive management trial. Stand structure in this unit is not conducive to uneven-aged management techniques. Defer treatment would not regenerate and/or sanitize an overmature stand nor provide a timber yield.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The skyline setting is bounded to east by low productivity forestland and to south by Class II portion of the stream bisecting the unit which upgrades to Class II when the direction of flow change from southeast to east. The northern boundary is the logging setting boundary that leaves a logical future setting between 29119 and 29120. Blowdown may be a problem in this leave strip. The west boundary of the skyline setting is the break to Hazard Class III soil within the unit. The boundary running northwest to southeast on the helicopter setting follows the transition into low productivity forest/muskeg and a buffer on the v-notch separating 29120 from 29122. Southwest boundary follows the 100 ft TTRA buffer on the Class II upgrade from the v-notch separating 29120 from 29122.

### Forest Productivity Activities:

- (1) Soil mixing and warming caused by logging disturbance and blowdown of residual timber.
- (2) Schedule PCT thinning and favor SS and YC in skyline portion of unit.
- (3) Review helicopter setting for TSI opportunity and monitor response to partial harvest.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

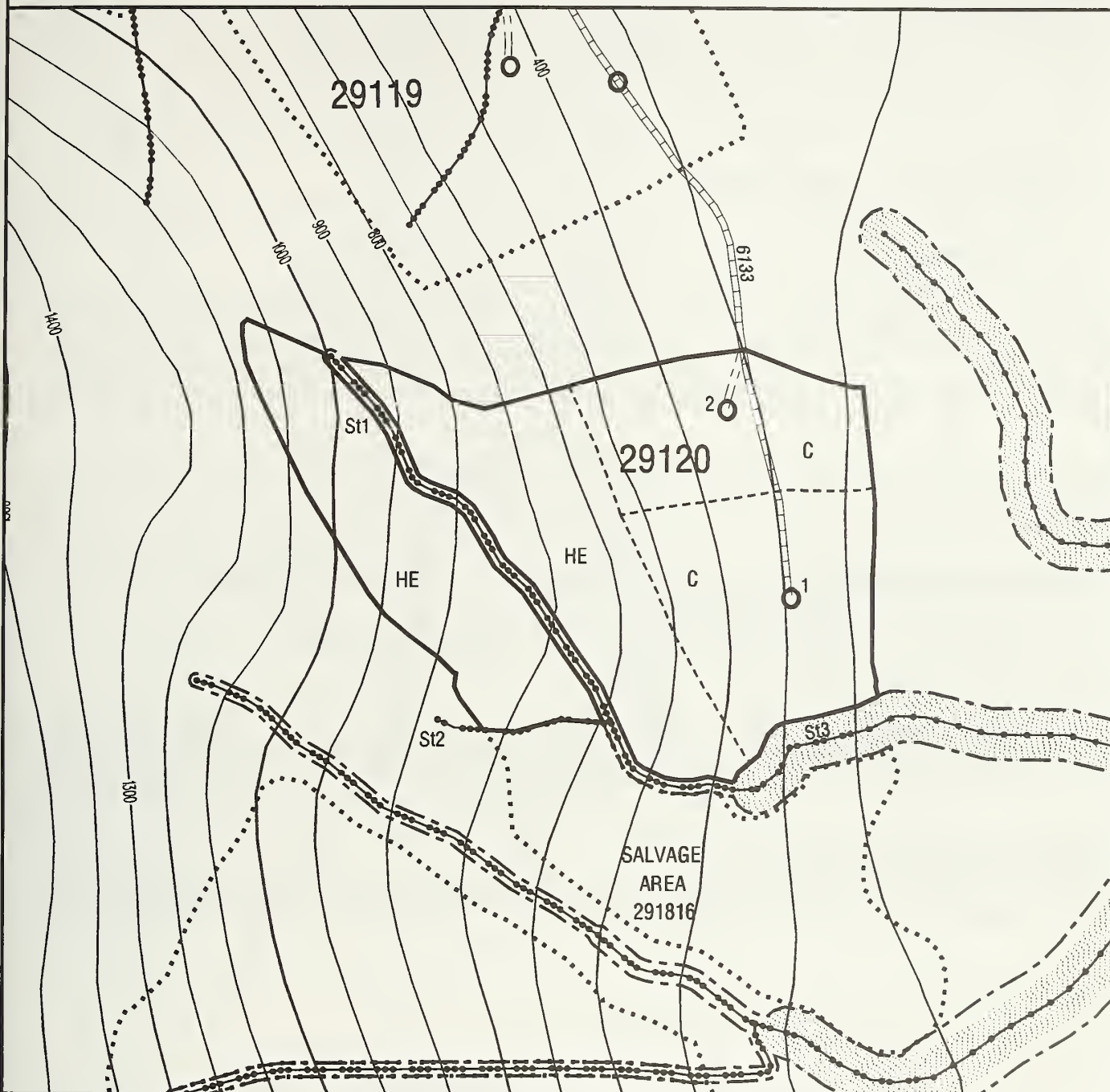


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 171 VCU: 89 UNIT: 29120 ALTERNATIVE(S): 2 4 5

ACRES: 79.1 TOTAL NET MBF: 1158 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 203



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
★ EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29121

MAP: 172

## STAND CHARACTERISTICS

Upper elevation stand of medium to large sawtimber in the western hemlock-yellow cedar series with a significant Sitka spruce component (VC 4 and VC 5) and minor low productivity inclusions and a small area of western hemlock series (VC 6) on the upper slope on the east extent of the unit. Defect and mortality is average. Stand structure is uneven in VC 4 and low productivity and functionally even-aged in VC 5 and 6. Overstory age is 300 to 400 years. Slopes are moderately steep to steep, dissected by numerous high-gradient Class III & IV streams. Soils drainage is moderately poor to moderately well drained with some poorly drained areas locally. A low gradient Class III stream bisects the unit south to north and upgrades to a Class II and exits the unit through a broad deposition flat with well-drained alluvial organic soils. Understory shrubs are blueberry with skunk cabbage common in VC 4 and devils club in common in well-drained swales in VC 5 and VC 6. Salmonberry and alder occur on the alluvial flat and on Hazard Class 4 soils adjacent to the unit. Advanced conifer reproduction occupies less than 20% understory cover and is poor to fair in vigor. Regeneration potential is mostly high but is moderate to low in areas of poor drainage. Potential productivity is very high to fair following the same pattern. Excellent Sitka spruce and yellow cedar site.

## IV. RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Running skyline and large 90 ft slackline required. (2) Tail trees and skyline extensions through stream buffer required. 2900 ft temporary roads required. (4) Partial harvest not feasible. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: Intermediate. (2) Not seen from ferry route.

**Soils / Geology:** (1) Adjacent hazard Class 4 soils, low site conditions, and alluvial soils, identified and deleted from unit. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1b, 5 and 6(HC) - See Class IV overall prescription in the Resource Opportunities and Constraints section in Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Streams 1a, 4a (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 2, 3, 4b(HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** (1) Unit near mountain goat habitat. (2) Recommend leaving green reserve trees and snags for vertical structure diversity and other wildlife habitat values. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams and protect temperature sensitive streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Exclude Hazard Class IV soils and low productivity forest from the timber base.
- (6) Maintain diversity of commercial timber species.
- (7) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because partial harvest is of poor feasibility and harvest economics, timber productivity, and regeneration of favored species are best with a clearcut. Uneven-aged and intermediate treatments were not indicated by stand conditions nor conventional logging systems. Unit size was reduced by exclusion of Hazard Class 4, alluvial, and low productivity forest soils. A no cut buffer (flagged in unit) along the Class III bisecting the unit reduces watershed and wildlife habitat and temperature sensitivity. Defer treatment would not regenerate a stand with high regeneration potential, high timber value, and high to very high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The west and south boundaries are defined by the transition to Hazard Class 4 soils. The north boundary buffers an alluvial deposition complex of stream confluence's and a Class II stream and excludes low productivity forest. The north boundary west of the Class II stream also excludes an area of alluvial deposition and muskeg and then follows logging setting boundaries with a logical unit retained between 29121 and 29113.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Planting SS and YC to maintain cedar component and enhance value and volume productivity.
- (3) Schedule PCT and favor SS and YC for species diversity and value productivity.

## MONITORING PLAN

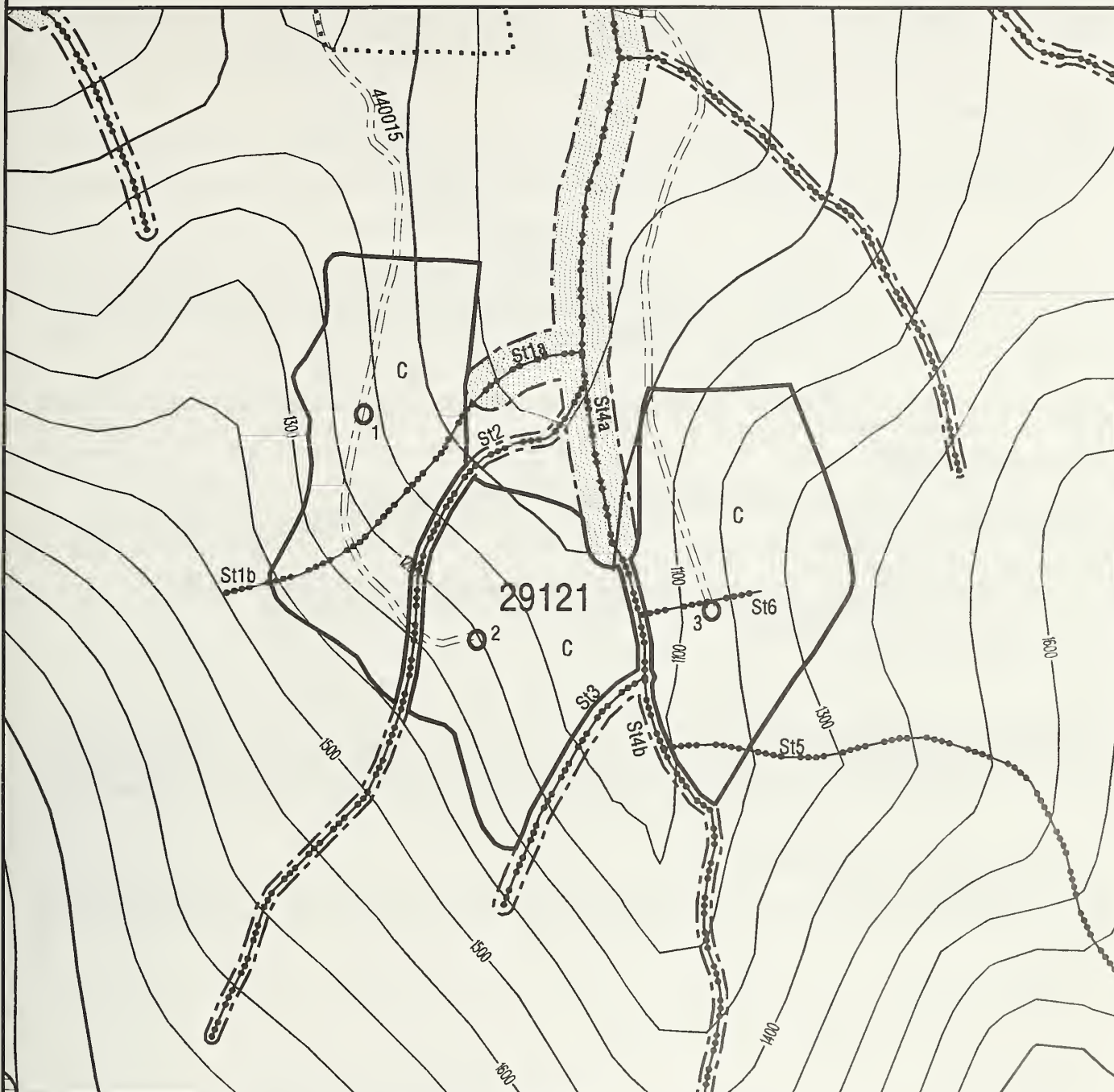
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 172 VCU: 89 UNIT: 29121 ALTERNATIVE(S): 2 4 5 7

ACRES: 61.32 TOTAL NET MBF: 1222.5 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 203



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

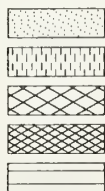
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○<sup>1</sup> LANDING & NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0

660

1320

1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29122

MAP: 173

## STAND CHARACTERISTICS

Low to upper elevation stand of large sawtimber (VC 6) in the western hemlock series. Defect and mortality are average. Stand structure is functionally even-aged with overstory age 300-350 years. Slopes are moderately steep to steep with a V-notch Class III drainage. Soils are moderately well drained. Understory species are primarily blueberry with rusty menziesia, shield fern, and devils club on steeper slopes in the west of unit. Abundant and vigorous WH regeneration from 3 to 30 feet tall is present in most of the unit in canopy gaps from windthrow. Regeneration potential and potential productivity is high. Windthrow is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) No road access; helicopter harvest. (2) Partial harvest feasible. (3) Helicopter landing would occur at road terminus in Unit 29120. BMP 13.9.

**Visual Resource Management:** VQO: Maximum Modification, VAC: Intermediate. (2) Partly seen in background at 8 to 10 miles from ferry route; partly seen from North Arm in middleground and in background from the mouth of Farragut River.

**Soils / Geology:** (1) Hazard Class IV soils identified and deleted from unit. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1, 2 and 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 4 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Suitable habitat for Canadian goose and red breasted sap sucker. (2) Recommend leaving live reserve trees and snags for vertical structure and other wildlife habitat values. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Leave sufficient reserve trees so that unit would meet PR from the mouth of the Farragut River and mitigate background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Conserve vigorous advanced reproduction where feasible.
- (6) Minimize sediment yield from fish bearing streams.
- (7) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative because: (1) Provides a highest volume and value yield from a stand with low current and high net productivity; (2) Visual, watershed, and wildlife impacts are mitigated; and (3) Stand structure and windthrow potential discourage uneven-aged or intermediate treatments. If clearcut, utility cull that is uneconomic to remove by helicopter, is left in green tree reserves. Advanced reproduction of good vigor will be released. Defer treatment would not regenerate a stand with high regeneration potential and high to very high productivity and would not provide a timber yield.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The north and south boundaries were expanded to the VC 6 strata and exclude Hazard Class 4 soils. The north boundary buffers a large and unstable Class III drainage. The northeast corner boundary buffers a Class II stream and a Class III V-notch. West and south boundaries were located as skyline setting boundaries prior to the switch to helicopter harvest system. In general, they follow a vegetation break into marginal VC 4.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and blowdown of reserve trees.
- (2) Schedule PCT and favor SS and YC for species diversity and value productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

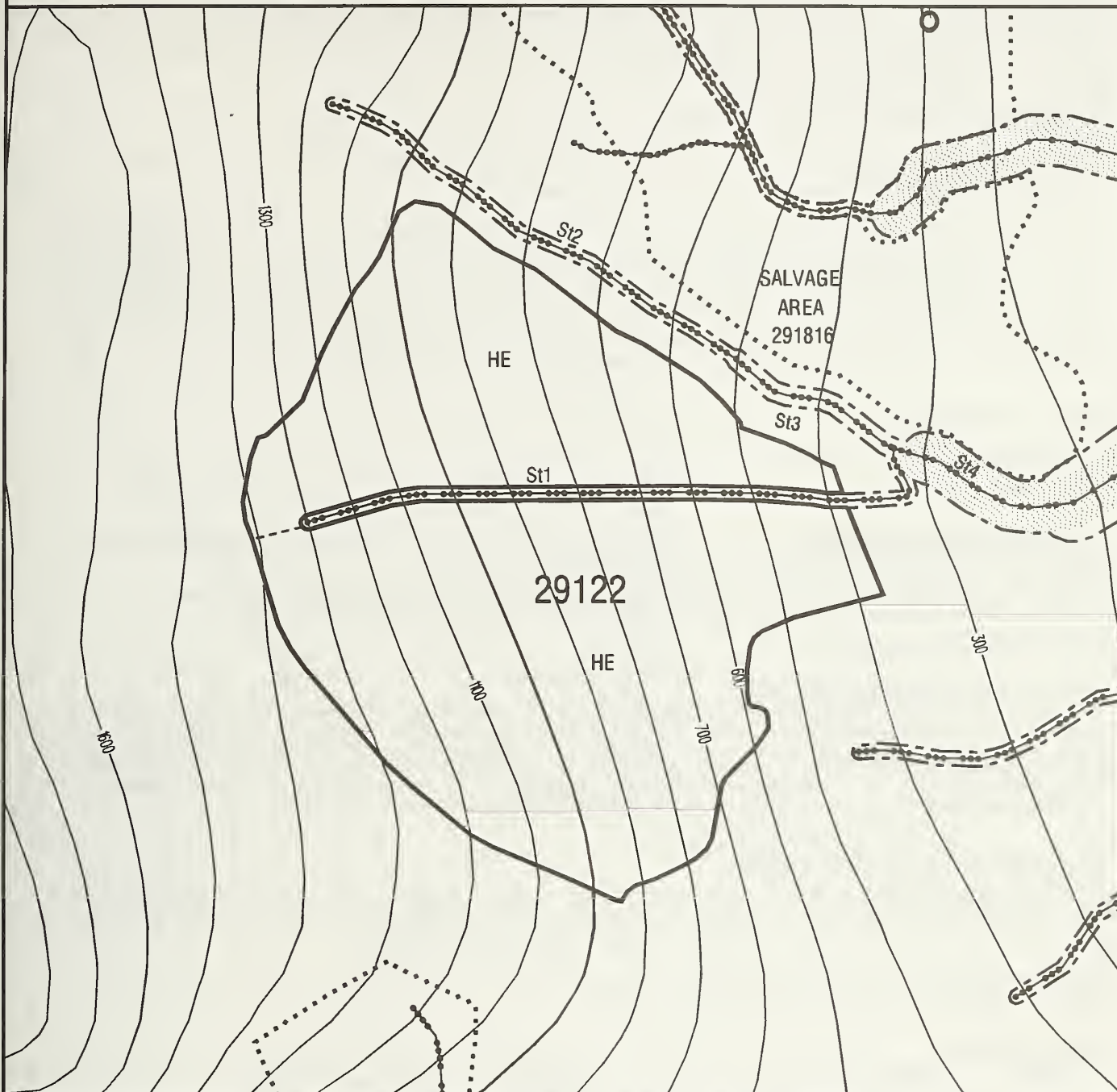


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 173 VCU: 89 UNIT: 29122 ALTERNATIVE(S): 2 4 5

ACRES: 94.02 TOTAL NET MBF: 2867.1 QUAD(S): SUMA4 QUARTER QUAD(S): NW

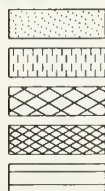
PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 203



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

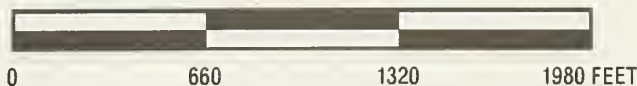
LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29123

MAP: 174

## STAND CHARACTERISTICS

Mid to upper elevation stand of W. hemlock-yellow cedar and mixed conifer series, volume class 5 and 6, composed of medium to large sawtimber with average to very high defect and mortality; yellow cedar is in chronic decline. Stand structure is functionally even-aged with overstory age 300+ years. Slopes are moderate to steep with one high-gradient Class IV stream; soil drainage is moderate to moderately poor. Understory is blueberry and skunk cabbage. Little advanced conifer regeneration is present; regeneration potential is moderate. Cedar decline is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter because of no road access. Partial harvest feasible. Use landing #4 in Unit 29120. BMP 13.9.

**Visual Resource Management:** (1) VQO: partial retention scenic view shed. (2) Background 8-10 mile view from ferry route, middle ground view from North Arm, and background view from cabins at Farragut Bay.

**Soils / Geology:** (1) Excluded Hazard Class IV and low productivity soils from harvest. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1c - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 1b and 3 (HC5) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 1a(HC5) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft. horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream #2(MM1) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Suitable Mt. Goat habitat.

**Cultural / Recreation / Subsistence:** No Concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of understocked stand with a diseased, mature overstory for a programmed timber yield.
- (2) Timber volume and value productivity.
- (3) Leave sufficient reserve trees so that unit would meet PR from the mouth of the Farragut River and mitigate background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Suspended Log Yarding.
- (6) Minimize sediment to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative because: (1) Provides a high volume yield from a defective stand with high potential and low current net productivity; (2) Reserve tree selection provides large defective hemlock and yellow cedar and Sitka spruce of good phenotype for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts. Logging systems feasibility is good for a heavy partial cut. Clearcut would provide a 5-10% higher timber yield but less regeneration of the higher valued and longer lived species without planting and would not ameliorate the impacts to visual or wildlife habitat resources as well as clearcut with reserves. Shelterwood with reserves, selection, and sanitation salvage would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Northeastern and southeastern portions of unit were excluded for low-site volume; east boundary therefore follows transition into low-site and a class III buffer. Western setting boundary was expanded to include logging setting further west; west boundary now borders a drainage with buffer. The north boundary is the original logging setting boundary for cable harvest system, and the south boundary was slightly modified to accommodate a Class II stream buffer.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and blowdown of reserve trees.
- (2) Schedule PCT and favor YC and SS for species diversity and value productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

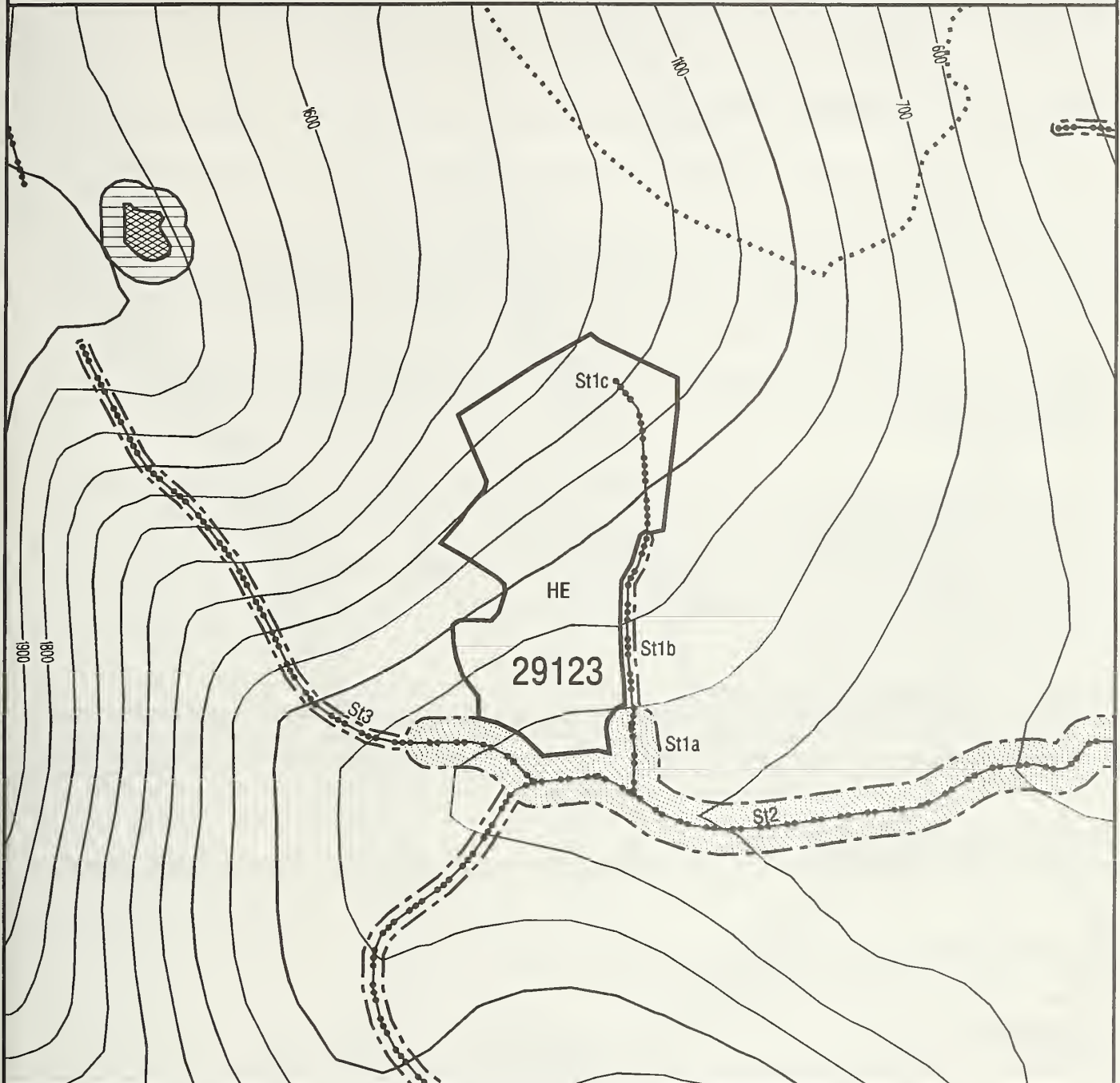


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 174 VCU: 89 UNIT: 29123 ALTERNATIVE(S): 2 4 5

ACRES: 26.99 TOTAL NET MBF: 427.7 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 202



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29125

MAP: 156

## STAND CHARACTERISTICS

Lower elevation stand of W. hemlock-yellow cedar series with scattered spruce dominants, volume class 4, composed of medium sawtimber with average defect and mortality. Good yellow cedar site. Stand structure is functionally even-aged with overstory age 350+ years with some 250 to 350 western hemlock. Slopes are gentle to moderate with one Class III/IV drainage, and soil drainage is moderately poor. Understory is composed of blueberry with skunk cabbage and rusty menziesia. Mixed-species conifer regeneration occupies 20-40% understory cover; regeneration potential is moderate to high.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Running skyline with 3/4 in lines. (2) 4 landings all requiring artificial guyline anchors. (3) Feasible for heavy partial cut but snag retention a safety hazard. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: High. (2) Partially seen in background from ferry route at 10 mi., middle ground view from North Arm at 3 mi. (3) Rated visually sensitive.

**Soils / Geology:** (1) Excluded low productivity soils.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section in Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 2 (PA) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined as greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 100 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 3 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints of Appendix A. No commercial harvest within the riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Suitable habitat for Canadian goose and red breasted sapsucker. (2) Moose with young observed in lake to northwest. (3) Recommend leaving green reserve trees and snags for vertical structure diversity and other wildlife habitat values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigate middleground and background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Exclude low productivity soil.
- (6) Design alternative silviculture rx to provide operational demonstrations of adaptive management trials.
- (7) Provide a programmed timber yield.
- (8) Skyline Yarding with Lateral Yarding Capability settings 3.
- (9) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative because it meets resource objectives, is an efficient method to harvest the stand and improve productivity and provide for retention of leave trees to soften visual impact, maintain wildlife values, and retain Sitka spruce and yellow cedar seed source. Clearcut and clearcut with reserves would not provide the same degree of habitat modification, ecological/soil functioning, and visual mitigation, but would provide about 10% more timber harvest in this entry. Group selection and sanitation salvage would not provide the same timber yield, would not result in the desired stand structure, and would be less economical. Sanitation salvage is not recommended for logging systems feasibility. Defer treatment would not provide a timber yield and would not regenerate a stand with moderate potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit boundaries follow the transition border of productive timberland into mixed-conifer low-site and muskeg. The east boundary follows the access road which terminates in the unit.

### Forest Productivity Activities:

- (1) Planting YC and SS to maintain cedar component and improve volume and value productivity.
- (2) Soil mixing and warming from logging disturbance and blowdown of reserve trees.
- (3) Schedule PCT and favor YC and SS for species diversity and value productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

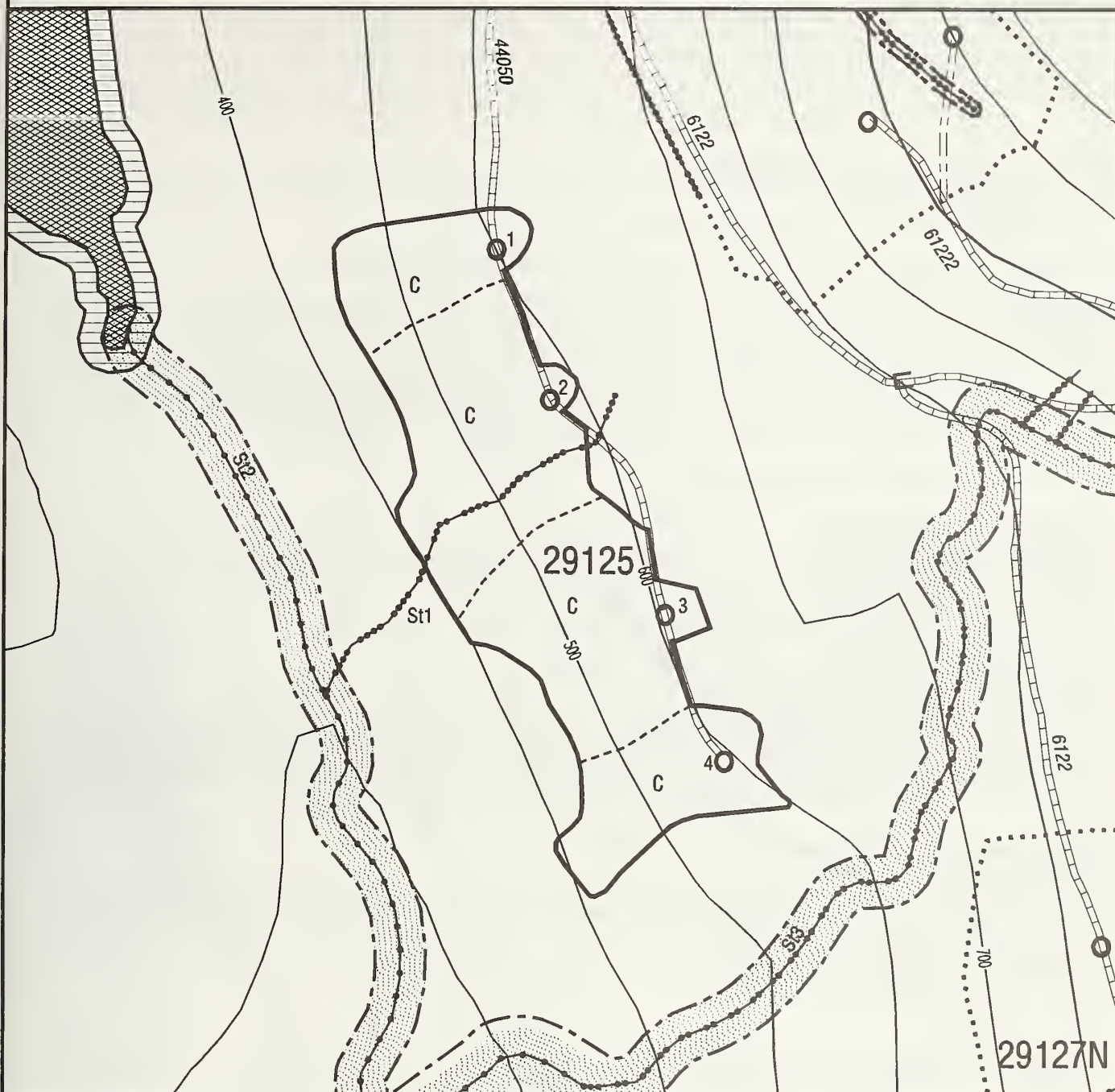


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 156 VCU: 89 UNIT: 29125 ALTERNATIVE(S): 4

ACRES: 49.9 TOTAL NET MBF: 547.8 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 55 ROLL NO.: 684 PRINT NO.: 205



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29126

MAP: 145

## STAND CHARACTERISTICS

Mid elevation stand of medium to large sawtimber with moderate to high defect and mortality. The predominant forest series is western hemlock with WH -YC along drainages and WH-YC and MX on flats and in ecotones. Scattered spruce are dominant in the canopy. Stand structure varies from functionally even-aged to uneven-aged with gaps from mortality and blowdown and in the open canopy VC 4. VC 5 & VC 6 occur on the better drained soils of the upper slopes. VC 4 is concentrated on the flatter slopes on the west edge of the unit and east of road 61222 in the south end of the unit. There are 3 apparent age classes in the WH series; > 300 yrs with abundant snags, relatively thrifty 200 to 300 yr WH, and about 20% of growing space occupied by advanced regeneration. Blueberry is common with devil's club on steeper well drained slopes and in drainages and skunk cabbage on poorly drained flats. Potential productivity is fair to good. Windthrow is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Partial harvest feasible on portions of stand; (2) 600 feet of temporary road required; (3) Tail trees will be required; (4) Snag retention is a safety hazard. (5) skyline logging. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: High

**Soils / Geology:** (1) Soil stability concern on eastern boundary in settings 2, 4, and 6. Locate boundary below potential slump areas. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1,2 and 4 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 5 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6,12.6a and 13.16. (6) Stream 6 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6,12.6a and 13.16.

**Wildlife:** (1) Suitable Canadian goose and red breasted sapsucker habitat.

**Cultural / Recreation / Subsistence:** No concern.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an over mature stand with a diseased overstory for a programmed timber yield.
- (2) Improve timber volume and value productivity.
- (3) Exclude Hazard Class 4 soils from harvest because of mass movement risk.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Skyline Yarding with One-End Suspension.
- (6) Minimize sediment to fish bearing streams and consider temperature sensitive streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because it would provide a high volume yield from a defective stand with high potential and low current net productivity. Clearcut with reserves and shelterwood with reserves are not feasible for the unit as a whole with cable logging. Reserve trees are likely to blowdown. Group selection would not provide the same yield or subsequent productivity, would increase windthrow risk substantially, and would require helicopter yarding. Feathered edges and areas dropped because of slope instability will soften a background visual impact and maintain some elements of habitat structure, as well as help in decreasing the potential for stream temperature sensitivity. Defer would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

After field review the unit is the lower areas of Units 29124 and 29126 (139 acres combined) of the paper plan unit pool plus the leave strip in between. The northeast boundary was established at the midslope break into oversteepened (>70%) and potentially unstable slopes. The west boundary touches a Class II stream buffer and the low productivity transition into muskeg. The southwest boundary is along a Class IV stream.

### Forest Productivity Activities:

- (1) Soil warming and mixing from logging disturbance.
- (2) If year 3 stocking survey indicates less than 100 well-distributed YC and SS, interplant 100 trees per acre year 4.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist







# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29127

MAP: 166

## STAND CHARACTERISTICS

Mid elevation western hemlock stand of medium and large sawtimber with yellow cedar on unit fringes. The stand is a mosaic of age classes: 350 yr plus, mature 150 to 250 yr; and younger age classes. The older timber is defective, mortality is high, and snags are common. Good WH reproduction in more recent windthrow gaps occupies between 20% to 30% of growing space. Understory vegetation is primarily blueberry. Slope stability is good. Devil's club is present in Class IV headwall and skunk cabbage is more abundant in the lower unit. as the slope toes out. Recent windthrow aligned in a north direction is evident. Windthrow is a management concern. Potential productivity is good to excellent.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) partial retention is feasible. (2) Tail trees are required and good choices are readily available.

**Visual Resource Management:** (1) VQO; Maximum Modification; VAC: High. (2) However, unit is very sensitive visually because of size. (3) Seen from ferry route in background - 10 miles- and from North Arm in middleground - 3 miles.

**Soils / Geology:** (1) Field review changed inventoried hazard class 4 to hazard class 3 or better. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1, 2, 8, and 9 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Streams 3 (HC5) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 10 (HC6) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Northern Goshawk seen in vicinity of unit but no nest was located. (2) Greater yellowleg seen in muskeg near unit. (3) Suitable habitat for Canadian goose and red breasted sapsucker. (4) Recommend leave green reserve trees and snags for vertical structure diversity and other wildlife habitat values. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of a overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Design alternative silviculture systems to provide operational demonstrations of adaptive management trials.
- (6) Provide a programmed timber yield.
- (7) Skyline Yarding with One-End Suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut settings 1 & 2; and Shelterwood w/ Reserves settings 5 & 6. This harvest pattern will phase tree retention into a windfirm boundary from the prevailing wind with the expectation that windthrow will impact the reserves. The adaptive management trial design is to test windthrow and regeneration patterns including soil productivity renewal from windthrow as theorized by some researchers. Plant association, forest series, aspect, soil drainage, and slope are relatively consistent in the unit. Visual impact should be ameliorated by this harvest pattern. Group selection and sanitation salvage are not feasible harvest methods without using costly helicopter yarding, and would require more frequent entries into the stand. Stand regeneration would be marginal and net productivity would likely decrease because of extreme windthrow. Defer would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Upper boundary to the east was determined by what could be reached with a yarder from the road location, availability of skyline anchors, and the objective of leaving an uncut muskeg fringe. This boundary would be an excellent helicopter salvage area in future projects because of the yellow cedar component in the ecotone. The south boundary was located at the north boundary of unit 29129 (dropped) as proposed in the paper plan. The west boundary follows the setting break to timber located tributary to a proposed road parallel and lower on the slope. For most of the unit, this coincides with a relatively distinct break in forest series and plant associations. Units 29127, 29128, and 29129 of the paper plan (272 acres) were reconfigured into 29127 as field located in order to reduce habitat fragmentation, reduce windthrow risk & impact, and to reduce the amount of road constructed at this entry by 1.5 miles.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and projected blowdown of reserve trees.
- (2) Retention of patches of advanced regeneration.
- (3) Schedule precommercial thinning.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 166 VCU: 89 UNIT: 29127 ALTERNATIVE(S): 4 7

ACRES: 106.55 TOTAL NET MBF: 1710.6 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 30 ROLL NO.: 1088 PRINT NO.: 45



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:12000 1 INCH = 1000 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29130

MAP: 177

## STAND CHARACTERISTICS

Mixed conifer and western hemlock-yellow cedar stand (VC 4 and VC 5 respectively) located on upper slope near commercial timberline comprised of small and medium sawtimber with high defect and poor growth and vigor. Yellow cedar and mountain hemlock are important species and dominate the inventory in VC 4. Stand structure is two-storied to uneven. The VC 4 has an open canopy because of cedar decline and poorly drained soil. Advanced regeneration is sparse, slow growing, and has snow damage. Most merchantable timber is greater than 300 yrs old. There is dense blueberry in the understory. Windthrow and slope instability are management concerns. The unit is bisected by a v-notch. Potential productivity is fair.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft slackline yarder required for setting #1; running skyline for settings 2 & 3. (2) Tailtrees required. (3) Parts of road to be used as continuous landing. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High

**Soils / Geology:** (1) Excluded Hazard Class 4 soils. (2) Setting 3 requires boundary location to minimize soil disturbance; soil scientist should assist in this boundary location. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1 and 10 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Streams 2, 3, 4, 5, 6, 7, 8 and 9 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (3) Stream 11 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Goshawk and marbled murrelet surveys had no response. (2) Recommend leaving vertical habitat structure. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of a overmature stand with a decadent overstory and poor advanced regeneration.
- (2) Improve timber volume and value productivity.
- (3) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (4) Avoid soil mass wasting risk.
- (5) Maintain diversity of merchantable timber species.
- (6) Provide a programmed timber yield.
- (7) Skyline Yarding with One-End Suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

**Cable Settings:** Clearcut is the selected alternative because a partial harvest is not a feasible harvest method for the cable settings, and it meets resource objectives for the stand. The disturbance associated with a clearcut is likely to result in successful regeneration of the desired species mixture and subsequent productivity. Clearcut with reserves, shelterwood with reserves, and group selection would be difficult operationally and less successful economically than the clearcut. Defer would not regenerate nor recover timber value from a defective stand.

**Helicopter setting:** The sanitation salvage Rx is about 15 acres that is only feasible to log by helicopter in the upper southeast portion of the unit. Overmature timber value is removed without the impact of a clearcut which reduces the effective clearcut opening to under 100 acres.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundary to the north is the yarding limit from the terminus of the access road. This northern setting was added from the paper plan and increased unit size. The boundary to the west is the low productivity muskeg fringe and is well away from the Class II stream course so that no flagged buffer was required. The boundary to the SE is north of the v-notch. The unit size from the paper plan increased from 87 acres. Unit 29131 (67 acres) was dropped to provide a windfirm edge into the prevailing wind direction. The narrow leave strip between units 29130 and 29131 included an unstable v-notch and was acknowledged to present an extreme windthrow risk.

### Forest Productivity Activities:

- (1) Schedule PCT and stand cleansing post-harvest for helicopter setting.
- (2) Soil mixing and warming from logging disturbance.
- (3) Planting yellow cedar and Sitka spruce.
- (4) Schedule precommercial thinning of clearcut.

## MONITORING PLAN

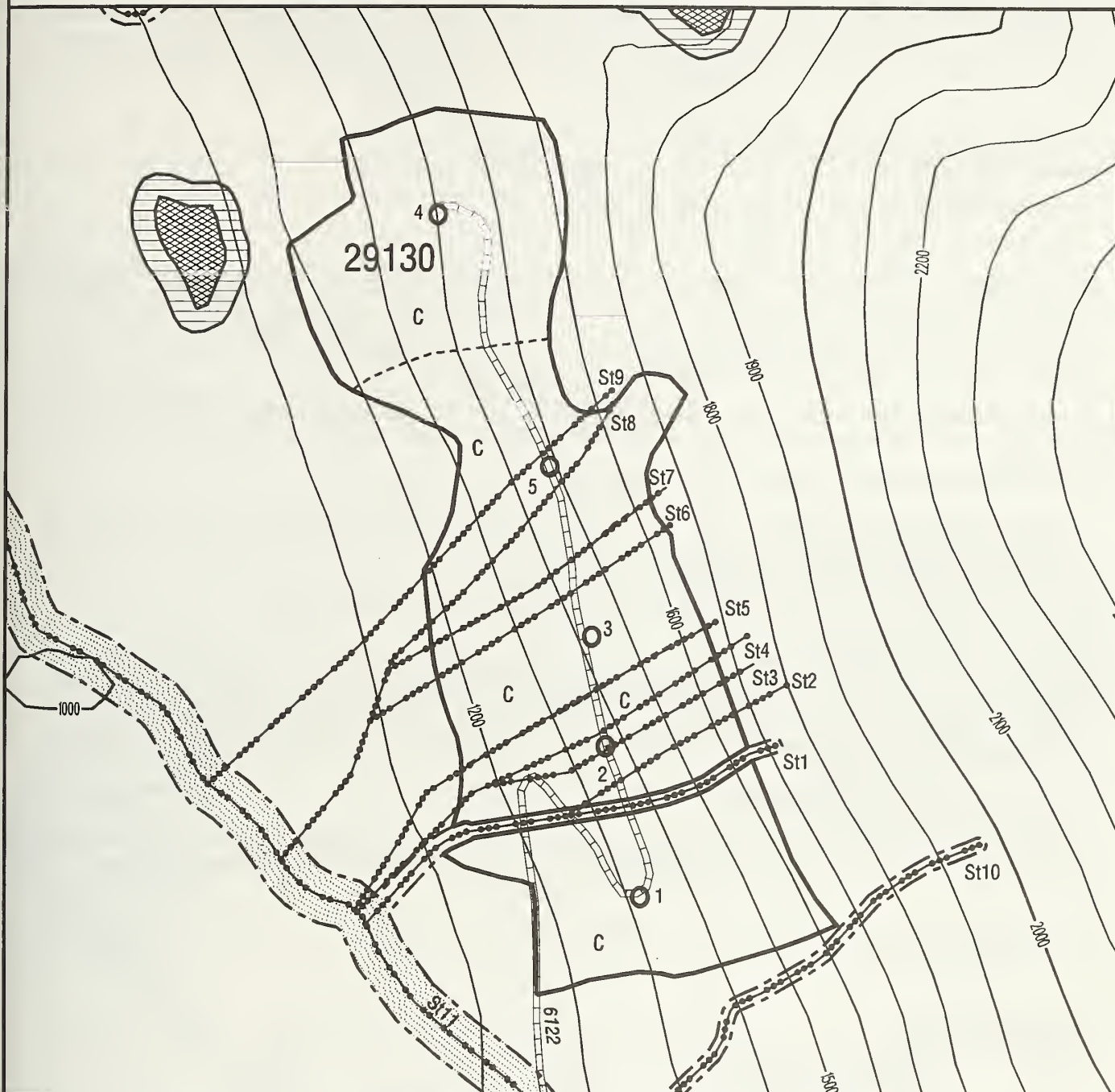
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 177 VCU: 89 UNIT: 29130 ALTERNATIVE(S): 4

ACRES: 87.82 TOTAL NET MBF: 1491.4 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 57 ROLL NO.: 1184 PRINT NO.: 154



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 29198

MAP: 118

## STAND CHARACTERISTICS

Lower to mid elevation stand of western hemlock series, volume classes 5 and 6, composed of large sawtimber with average to high defect and mortality. Stand structure is a mosaic of 2-storied and uneven-aged, with overstory age 300-450 years. Slopes are concave from gentle to steep with rising elevation; soil drainage is moderate and moderately poor. Understory is blueberry with a complement of skunk cabbage, shield fern, and devils club by plant association, 40-90% understory cover. Advanced WH regeneration is present in 10-30% of unit under canopy gaps created by past windthrow, with variable vigor. Windthrow is a predominant management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Running Skyline with 7/8" line proposed. (2) Downhill yarding, partial cut not feasible.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC High; (2) Not Seen.

**Soils / Geology:** (1) Unstable V-notches, area deleted. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1, 2 and 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 5 and 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 4 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Marbled Murrelet and N. Goshawk surveys were negative. (2) Recommend leaving green reserve trees and snags for vertical structure and other wildlife habitat values. (3) Suspect red tail hawk nest was not found. (4) Canadian goose seen in beaver ponds east of unit. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No Concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of understocked stand with a decadent, mature overstory.
- (2) Timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Provide a programmed timber yield.
- (6) Skyline Yarding with One-End Suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut was the selected alternative because partial harvest is of poor feasibility due to downhill yarding. Blowdown of reserve trees would be likely in a clearcut with reserves, and there would be no conflict with visuals or need to enhance soil mixing to forestall podsol formation over and above that provided by clearcut. Incidental reserve trees and snags selected in safe, windfirm locations will provide vertical structural habitats for wildlife. Clearcut is the most optimal method for timber yield and subsequent productivity while still meeting resource objectives. Defer would not provide a timber yield and not replace a decadent stand with high growth potential of a young vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

South boundaries border high-gradient V-notch. The east boundary follows the road location. The west boundary is a logical setting boundary with future entries located upslope. The unit was part of 29101 as originally conceived, and the leave strip between 29198 and 29101 deleted because of soil instability. Some blowdown is expected in this area.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Schedule PCT and favor SS.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

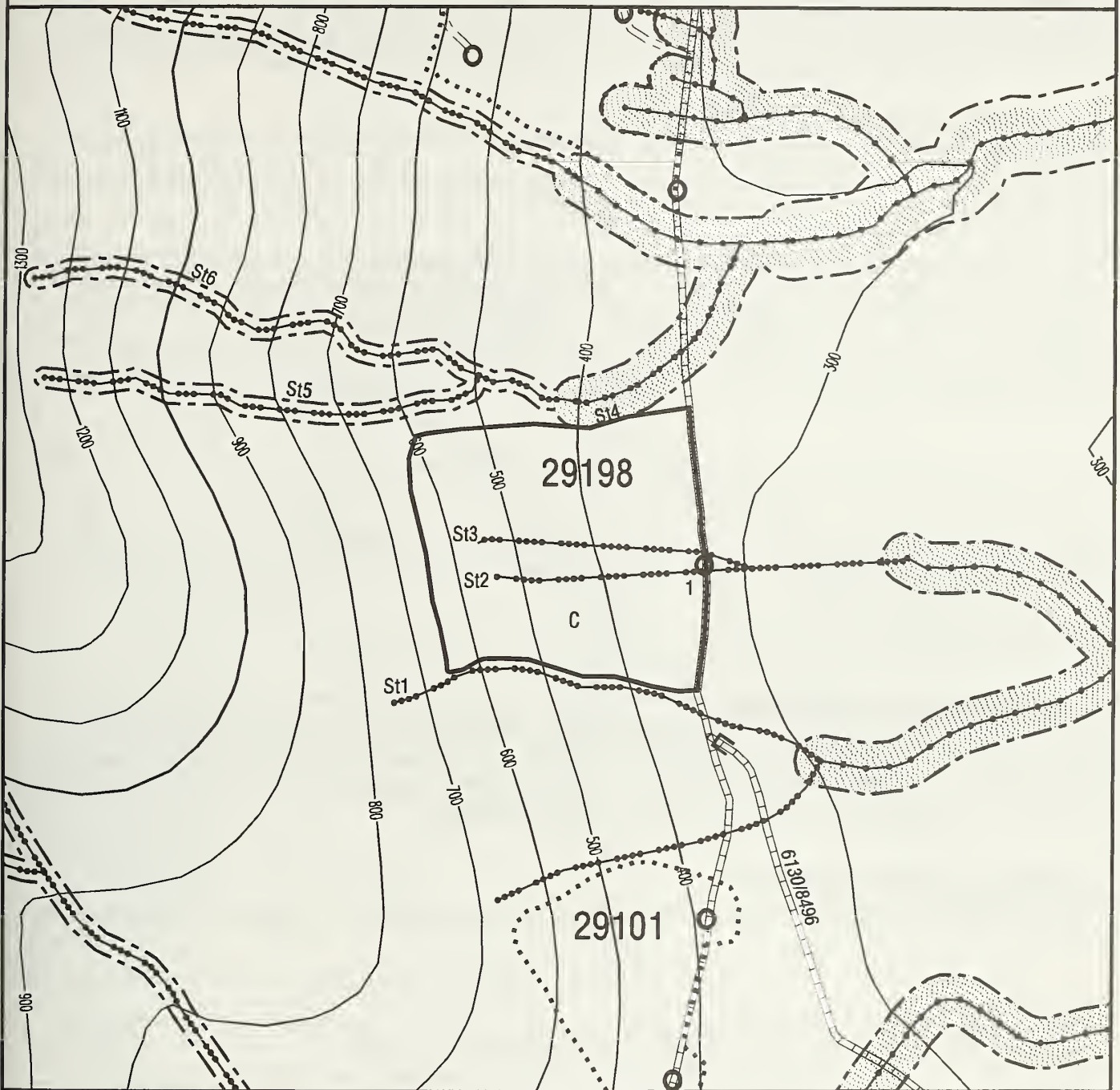


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 118 VCU: 89 UNIT: 29198 ALTERNATIVE(S): 2 4 5 6 7

ACRES: 28.63 TOTAL NET MBF: 848.6 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 54 ROLL NO.: 684 PRINT NO.: 182



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 311140

MAP# 1

## STAND CHARACTERISTICS

Upper-slope stand, moderately steep, on general southerly aspect. Mountain hemlock series with spruce component. A Class III stream in a steep V-notch bisects the south unit boundary. Small muskegs border higher elevations, and also occur in scattered locations within the unit. Stand structure is functionally even-aged, with closed canopy over most of the unit. Defect is high in Volume Class 4 and adjacent to muskegs. Little evidence of windthrow despite southerly exposure. Overstory age is generally 300 years. Understory vegetation includes dense Vaccinium, with ladyfern, skunk cabbage, and devil's club. The area has a high regeneration potential.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Cable yarding with one small helicopter setting. Settings are located so that yarding will be away from major muskegs and stream courses. Three temporary spurs of moderate grade/construction. BMP 13.9.

**Visual Resource Management:** VQO is Maximum Modification, which will be met by inclusion of reserves in some localities, and by feathering clearcut edges. The VAC is Intermediate to High. Unit will be screened by topography and remaining trees in foreground.

**Soils / Geology:** BMPs 12.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 8 (HC6) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as within the side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 8a (MC1) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 5, 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (4) Stream 9, 14 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (5) Stream 1-4, 6, 10-13 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (6) Stream 8, 9, 14 - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** Recommend retaining reserve trees and snags for structural diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns noted. Class III identified bisecting unit.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats on and adjacent to unit.
- (5) Maintain or improve site productivity.
- (6) Area will be split-yarded away from Class III stream; one-end suspension of Class III stream in setting 3.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut and clearcut with reserves best meet integrated resource objectives. Reasons: (1) Converts unit to vigorous young stand with remnant biological structures. Quality, type, and amount of regen will be controlled through PCT and supplemental planting if needed. Reserve trees in clusters or groups will provide structural diversity and ecological functions and still be operationally feasible. (2) Approx. 95% of the available volume will be harvested. (3) Unit design and silv. treatment will meet the VQO of Maximum Modification. (4) Fish habitats on and adjacent to unit will be maintained by protection of the V-notches and location of cable yarding settings. (5) Site quality will be maintained or improved. Warmer soil will increase biol. activity and increase decomposition of excess organic material. Some reserve trees will blow down, creating pit-and-mound microtopography and mixing mineral and organic soil layers and potentially reducing podzolization.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundary was determined by timber type characteristics and logical yarding limits. Internal boundaries and buffers were designed to protect the Class-3 stream and major V-notches.

### Forest Productivity Activities:

1. Soil mixing and warming from logging disturbance and projected blowdown of reserve trees.
2. Natural regeneration of Sitka spruce by retention of seed trees on unit edges and creation of favorable mineral seedbed.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 1 VCU: 81 UNIT: 311140 ALTERNATIVE(S): 2 4 5

ACRES: 57.47 TOTAL NET MBF: 836.4 QUAD(S): SUMB5 QUARTER QUAD(S): SE


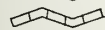
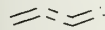

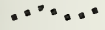








PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 784 PRINT NO.: 45

**GOLD BELT INCORPORATED**

311140

311140

311142

-  EXISTING ROAD
-  PROPOSED ROAD
-  PROPOSED TEMP ROAD
-  UNIT BOUNDARY
-  ADJACENT UNIT
-  SETTING BOUNDARY
-  CONTOUR LINE
-  OWNERSHIP BOUNDARY
-  RIPARIAN MGMT AREA
-  CLASS 1 STREAM
-  CLASS 2 STREAM
-  CLASS 3 STREAM
-  CLASS 4 STREAM

**LOGGING SYSTEM CODES:**

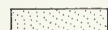




HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

 ROAD BEGINS LANDING & NUMBER EAGLE TREE

-  STREAM TTRA BUFFER
-  BEACH/ESTUARY BUFFER
-  SEAWATER
-  LAKE
-  LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 311141

MAP# 14

## STAND CHARACTERISTICS

Upper to mid-slope unit, moderately steep, on general southwest aspect. Mosaic of functionally even-aged overmature mountain hemlock and western hemlock with scattered Sitka spruce component. A Class II stream in a V-notch borders the west unit boundary. Small muskeg inclusions. Stand structure is functionally even-aged, with closed canopy over most of the unit. Defect is high in mountain hemlock. Little evidence of windthrow. Overstory age is generally 350 years and older. Understory vegetation generally open, with low Vaccinium and devils club in drainages. Scattered conifer advance growth in poor condition.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** One helicopter setting in NE of unit. Retention of snags within unit is serious safety concern. Partial cutting feasible; skyline extension across Class III stream needed for suspension. Tail Trees required. Temporary spurs required.

**Visual Resource Management:** VQO is Maximum Modification. Area has a Low VAC. Unit is viewed from oblique angle, folded into topography.

**Soils / Geology:** Boundary readjusted to avoid Class IV soils. BMPs 12.5 and 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 1, 3, 6, 14b (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 4 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Stream 6a (MC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined as within the side-slope breaks. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (4) Stream 2, 5, 7-13 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (5) Stream 14 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (6) Stream 14a (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (7) Stream 4, 5, 8 - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** Need to retain reserve trees and snags for habitat and structural diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns identified.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats on and adjacent to unit.
- (5) Maintain or improve site productivity.
- (6) Skyline system prescribed, with split yarding at major V-notches.
- (7) Suitable for partial cutting on uphill yarding portion.
- (8) Will need to relax system in upslope areas to the extent feasible to break up litter layer and prepared seedbed for natural regeneration.

## RATIONALE FOR ALTERNATIVE SELECTION

Combination of clearcutting and clearcutting with reserves best meets integrated resource objectives. Reasons: (1) Converts unit to a more vigorous young stand. Quality, type, and amount of regen will be controlled through precomm. thinning and supplemental. planting if needed. Reserve trees in clusters or groups will provide structural diversity and ecological functions. (2) Approx. 95% of the net volume available will be harvested. (3) Unit design and location, as well as silv. treatment, will allow the VQO of Maximum Mod. to be met. (4) Fish habitats will be maintained by buffering the Class II stream and protecting V-notches. (5) Site quality will be maintained or improved. Warmer soil will increase biological activity and increase decomposition of excess organic material.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundary was determined by landform, drainage pattern, and vegetation types. The unit was located entirely on the east side of the Class 2 stream to avoid negative impacts to the fisheries resource. Settings were dropped and unit boundaries were adjusted to eliminate areas with unstable soils.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance and projected blowdown of reserve trees. Natural regeneration of Sitka spruce by retention of seed trees on unit edges and relatively windfirm locations within unit.

## MONITORING PLAN

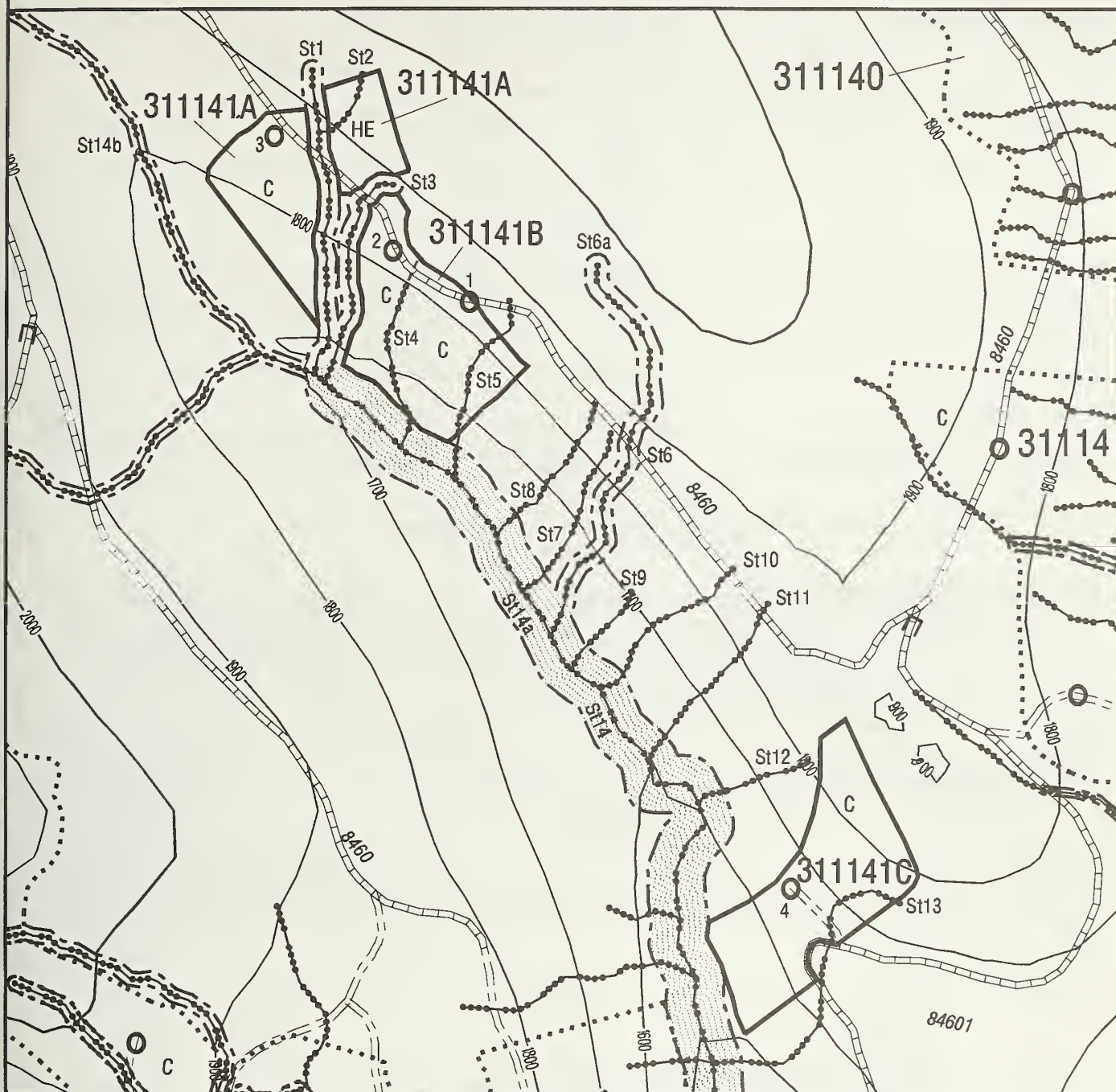
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist



MAP NO.: 14 VCU: 81 UNIT: 311141 ALTERNATIVE(S): 2 4 5

ACRES: 24.75 TOTAL NET MBF: 394.8 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 784 PRINT NO.: 44



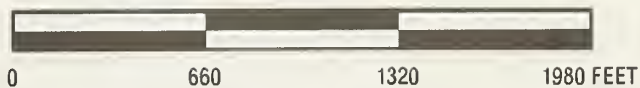
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 311142

MAP# 4

## STAND CHARACTERISTICS

Mid-slope unit, moderately steep, on east aspect. Functionally even-aged overmature mountain hemlock and western hemlock with scattered Sitka spruce component. A Class II stream in a V-notch borders the east unit boundary (formerly bisected unit before boundary adjustment). Defect is high in mountain hemlock. Some recent windthrow, with high potential for windthrow after stand is exposed. Overstory age is generally 350 years and older. Understory vegetation generally open, with low Vaccinium. Scattered conifer advance growth in poor condition. The area has a high regeneration potential and a high overall productivity.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Skyline extension across stream on east boundary will be needed to obtain log suspension. Snag retention is safety issue. 900-foot temporary road is required.

**Visual Resource Management:** VQO is Maximum Modification; VAC is Intermediate. No unusual concerns noted. Unit is viewed from oblique angle, folded into topography.

**Soils / Geology:** Moderate risk of mass movement. Most of soil failure potential associated with major V-notch. This area has been avoided. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 3, 6, 7 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Apply BMP 13.16 sec. 3b. (3) Stream 1, 2a, 2b, 3a, 4, 5, 6a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** Retain snags and reserve trees where possible for habitat structural diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** None noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of understocked stand with a diseased, mature overstory for a programmed timber yield.
- (2) Timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Skyline extensions required across main creek.

## RATIONALE FOR ALTERNATIVE SELECTION

Combination of clearcutting and clearcutting with reserves best meets integrated resource objectives. Reasons: (1) Converts unit to a more vigorous young stand. Quality, type, and amount of regen will be controlled through precomm. thinning and supplemental. planting if needed. Reserve trees in clusters or groups will provide structural diversity and ecological functions. (2) More than 90% of the net volume available will be harvested. (3) Unit design and location, as well as silv. treatment, will allow the VQO of Maximum Mod. to be met. (4) Fish habitats will be maintained by buffering the Class III stream and protecting V-notches. (5) Site quality will be maintained or improved. Warmer soil will increase biological activity and increase decomposition of excess organic material. Many reserve trees will blow down, creating pit-and-mound microtopography and mixing mineral and organic soil layers and potentially reducing podzolization.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundary was determined by landform, drainage pattern, and vegetation types. The unit boundary was relocated entirely on the west side of the Class III stream to avoid negative impacts to the fisheries resource and to eliminate areas with unstable soils.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance and projected blowdown of reserve trees. Natural regeneration of Sitka spruce by retention of seed trees on unit edges and relatively windfirm locations within unit. Supplemental reforestation of scarce species to increase production and diversity of successor stand.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

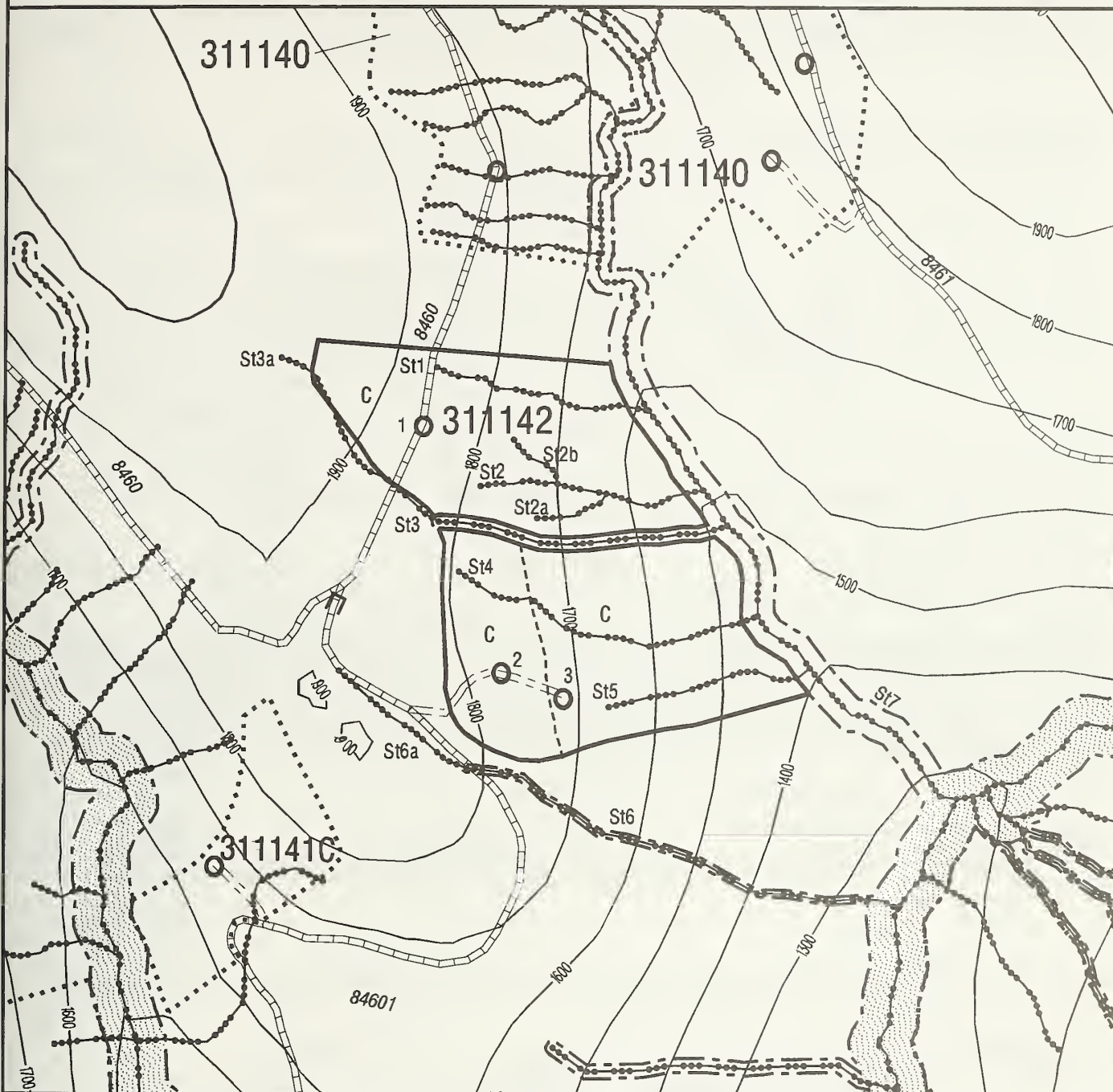


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 4 VCU: 81 UNIT: 311142 ALTERNATIVE(S): 2 4 5

ACRES: 42.02 TOTAL NET MBF: 1010.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 784 PRINT NO.: 44



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 311144

MAP# 6

Note: Alt. C is conventional logging. Alt. D is helicopter logging.

## STAND CHARACTERISTICS

Mid-slope unit, moderately steep, on NW to SW aspect. Mountain hemlock series. Functionally even-aged overmature mountain hemlock and western hemlock with scattered Sitka spruce component. Productive site, mostly Vol. Class 6 and 5, well stocked. Average defect. Small area of low site adjacent to stream in north part of unit has been excluded. Little evidence of recent windthrow; moderate risk of windthrow following harvest. Overstory age is generally 350 years and older. Understory vegetation generally open, with low Vaccinium and devils club in drainages. Scattered conifer advance growth in poor condition.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Suitable for heavy partial cut. Cable in Alternatives 2 & 5. Helicopter Alternatives 3 & 4. Skyline extensions across Class II stream on west side of unit. Landing and guyline anchors will be needed outside the unit. Multiple stump thresholds required. Snag retention is a safety issue.

**Visual Resource Management:** Area is topographically screened from view as seen from the water. No special visual concerns. VQO of Maximum Modification would be met by any treatment alternatives considered in this prescription.

**Soils / Geology:** Low risk for mass movement. Unit appears to be stable. Soil is generally well-drained. BMPs 12.5 and 13.2 applicable.

**Fisheries / Watershed:** (1) Stream 9, 10 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Stream 2, 3, 4, 5, 6, 8, 9a (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 1, 3a, 4a, 5a, 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (4) Stream 7, 4a - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** Retention of some undisturbed timber islands, snags, and other inclusions would benefit habitat diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns identified.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats on and adjacent to unit.
- (5) Maintain or improve site productivity.
- (6) Skyline extensions will be needed across the creek to the west of the unit.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) Approx. 95% of net volume available will be harvested, only about 5% less than clearcutting. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Fish habitats will be maintained by buffering Class III stream and protecting V-notches. (5) Site quality will be maintained or improved, due to increased soil functioning. Reserve tree selection provides large defective hemlock and spruce for vertical diversity and cavity nesting habitat, as well as seed sources for higher value timber species. Reserve trees in clusters or groups will provide structural diversity and ecological functions. (6) Logging systems feasibility is good for a heavy partial cut. Selected alternative meets all integrated resource objectives. Note that in some portions of the unit, the reserve trees may actually be at a density and arrangement to be classed as shelterwood with reserves.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The west boundary follows the buffered Class II stream. On the north, the unit boundary follows the major timber type and excludes a low-site bench above the stream. The remaining boundaries were determined by considering road location, timber type, and logging setting. In addition, the unit shape was configured to avoid narrowing that would tend to accelerate winds.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance and projected blowdown of reserve trees will result in increased soil biological activity and decomposition rate, potentially increasing productivity. Natural regeneration of Sitka spruce by retention of seed trees on unit edges and relatively windfirm locations within unit.

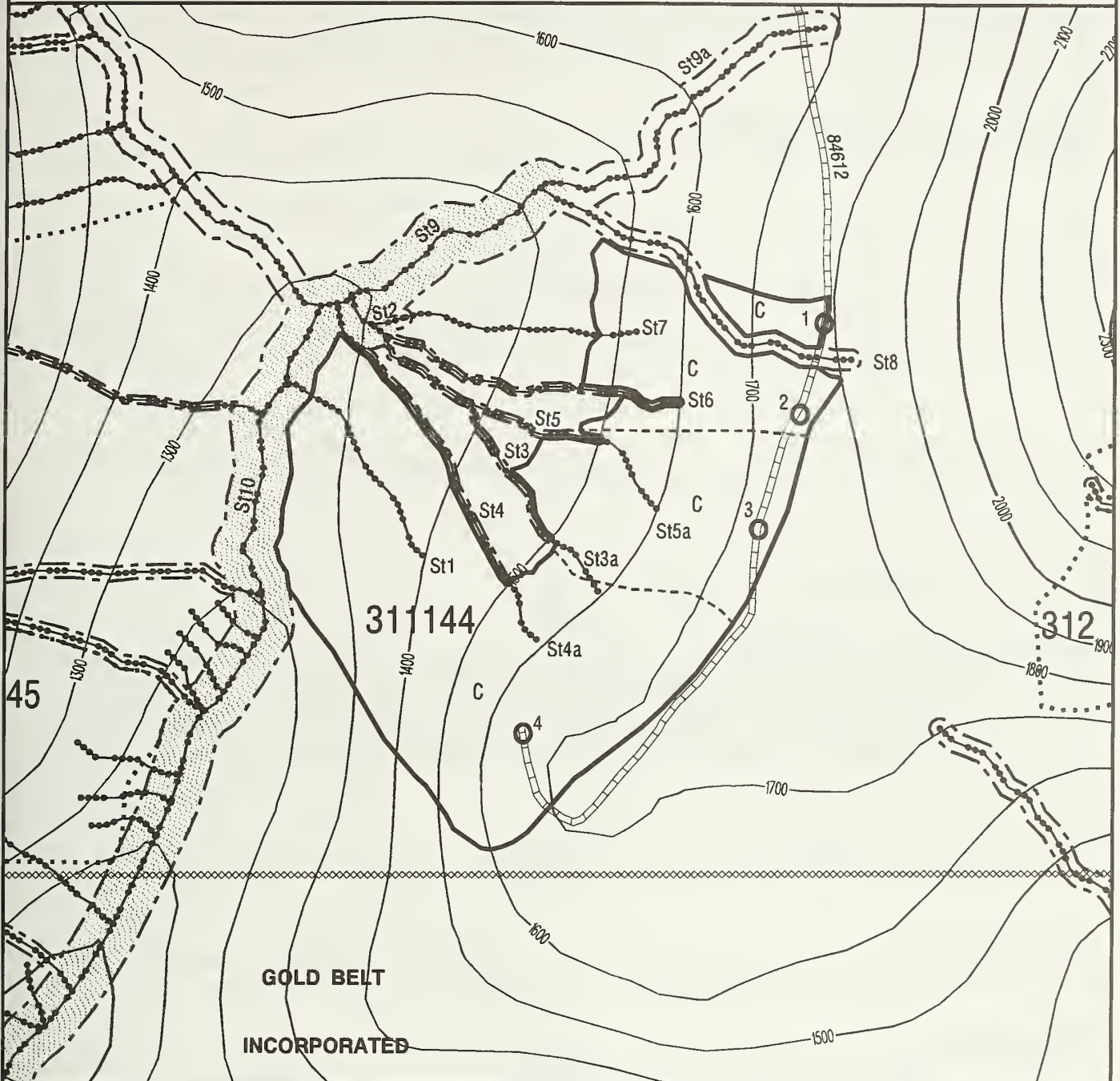
## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy.& reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 6 VCU: 81 UNIT: 311144 ALTERNATIVE(S): 2 3 4 5 ALL SETTINGS ARE HE IN ALTS. 3 4  
 ACRES: 68.43 TOTAL NET MBF: 1699.7 QUAD(S): SUMB5 QUARTER QUAD(S): SE  
 PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 784 PRINT NO.: 43



GOLD BELT

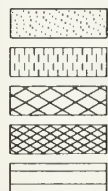
INCORPORATED



EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED TEMP ROAD  
 UNIT BOUNDARY  
 ADJACENT UNIT  
 SETTING BOUNDARY  
 CONTOUR LINE  
 OWNERSHIP BOUNDARY  
 RIPARIAN MGMT AREA  
 CLASS 1 STREAM  
 CLASS 2 STREAM  
 CLASS 3 STREAM  
 CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
 SV = SHOVEL  
 C = CABLE  
 St1 STREAM ID IN NARRATIVE  
 ROAD BEGINS  
 LANDING & NUMBER  
 EAGLE TREE



STREAM TTRA BUFFER  
 BEACH/ESTUARY BUFFER  
 SEAWATER  
 LAKE  
 LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 311145

MAP# 12

Note: Alt. 2 & 5 are conventional logging. Alt. 3 & 4 are helicopter logging.

## STAND CHARACTERISTICS

Mid-slope unit, moderately steep, on general SE aspect. Class II streams border the unit on the east and west, and join just south of the unit boundary. Numerous small streams, many with V-notches, drain to the eastern Class II stream. A major V-notch lies within the north fringe of the unit. No muskegs or bogs are found in the unit, but soils are generally poorly drained. Western hemlock forest series; western hemlock/blueberry/skunk cabbage plant association most common. Multi-aged overmature (350+) western hemlock, mountain hemlock, and scattered Sitka spruce. Low site productivity, predominantly Vol. Class 4. Highly defective stand, esp. mountain hemlock. Little current windthrow, but high potential due to stand exposure to SE aspect. Scattered conifer advance growth in good condition. Shrub cover 70-90%.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Heavy partial cut is feasible. For Alt. 2 & 5: 1/2 of unit is cable adn 1/2 is helicopter. Helicopter in Alts. 3 & 4. Skyline extensions across creek to SE required. Temporary road required, with 15% adverse grade, on wet site. Snag retention is safety issue. Alternatives 3 & 4 all helicopter to end of Goldbelt road south of unit.

**Visual Resource Management:** Area is topographically screened from view as seen from the water. VQO of Maximum Modification would be met by any treatment alternatives considered in this prescription. Retention of green trees and feathering edges would provide transition from existing heavy cutting.

**Soils / Geology:** Moderate risk for mass movement. Unit appears to be stable. BMP 13.2 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 15, 16 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Stream 1, 2, 8 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 3-7, 9-14 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** Retention of green trees and snags would help to maintain habitat structural diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** None noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats on and adjacent to unit.
- (5) Maintain or improve site productivity.
- (6) Skyline extensions across creek to SE required.
- (7) Minimize sedimentation into fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) Approx. 95% of net volume available will be harvested, only about 5% less than clearcutting. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Fish habitats will be maintained by buffering Class 2 streams and protecting V-notches. (5) Site quality will be maintained or improved, due to increased soil functioning. Reserve tree selection provides large defective hemlock and spruce for vertical diversity and cavity nesting habitat, as well as seed sources for higher value timber species. Reserve trees in clusters or groups will provide structural diversity and ecological functions. (6) Logging systems feasibility is good for a heavy partial cut. Shelterwood with reserves would be potential alternative, but increased windthrow potential and logging difficulties cause it not to be selected. Selected alternative meets all integrated resource objectives.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary follows the buffered Class II streams. On the north and west, the unit boundary follows the major timber type. The original boundary was changed to eliminate major slope areas >75%.

### F. Forest Productivity Activities:

Soil mixing and warming from logging disturbance and projected blowdown of reserve trees will result in increased soil biological activity and decomposition rate, potentially increasing productivity. Natural regeneration of Sitka spruce by retention of seed trees on unit edges[and relatively windfirm locations within unit.

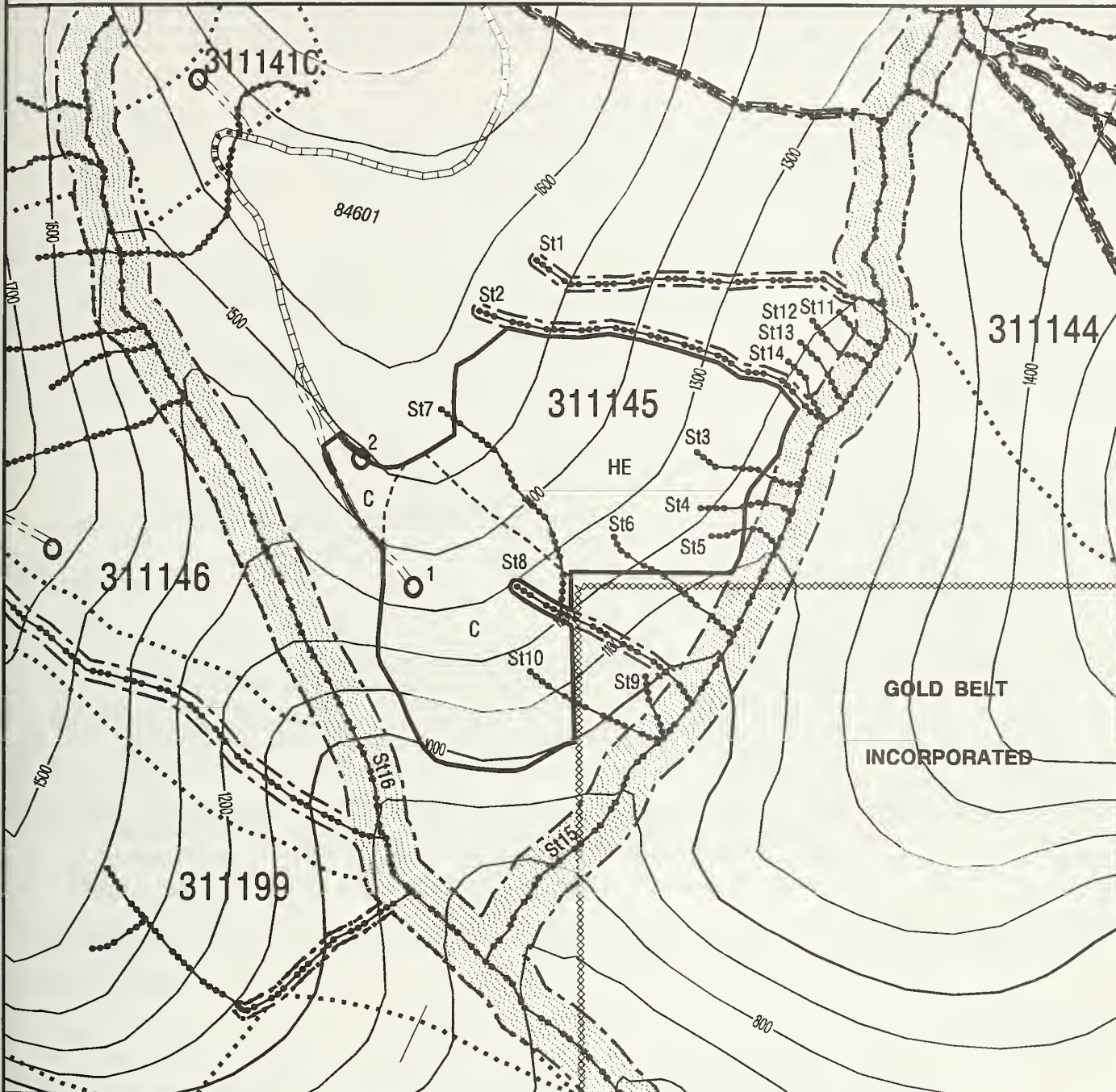
## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 12 VCU: 81 UNIT: 311145 ALTERNATIVE(S): 2 3 4 5 ALL SETTINGS ARE HE IN ALTS. 3 4 AND SETTING 1 IS HE IN ALT. 5  
 ACRES: 46.37 TOTAL NET MBF: 490.5 QUAD(S): SUMB5 QUARTER QUAD(S): SE  
 PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 784 PRINT NO.: 43



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

- LOGGING SYSTEM CODES:
- HE = HELICOPTER
  - SV = SHOVEL
  - C = CABLE
  - St1 STREAM ID IN NARRATIVE
  - ROAD BEGINS
  - LANDING & NUMBER
  - EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 311146

MAP# 8

Note: Alt. C is conventional logging. Alt. D is helicopter logging.

## STAND CHARACTERISTICS

This unit is located on SW-facing slope, just off a high-elevation ridgetop. Slopes range from gentle to moderately steep. A buffered Class III stream borders the east edge of the unit. Mountain hemlock forest series; mountain hemlock/blueberry plant association most common. Multi-aged overmature (300+) mountain hemlock and scattered Sitka spruce. Low site productivity, predominantly Vol. Class 4. Highly defective stand, esp. mountain hemlock. Little current windthrow, but high potential due to southerly aspect. Scattered conifer advance growth, variable condition. Shrub cover moderate to dense.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Heavy partial cut is feasible. Cable Alts. 2 & 5. Helicopter Alts 3 & 4. One helicopter setting in NW of unit. Split yarding can be used to avoid logging across V-notches in most cases. 5 temp. spur roads required. Snag retention creates safety hazard. Alt. 3 & 4 are helicopter.

**Visual Resource Management:** VQO is Maximum Modification, as seen from midground. Area is topographically screened from view as seen from the water. No special visual concerns.

**Soils / Geology:** Moderate to high risk for mass movement. Unit appears to be stable now that boundaries have been adjusted. BMPs 13.2 and 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 5U (MC)- See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Stream 5L (HC)- See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Stream 1, 2, 3, 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (4) Stream 6-9 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (5) Stream 3a (PA)- See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** Reserve trees and snags are needed to maintain habitat and structural diversity. Unit is near potentially suitable mountain goat habitat. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** None noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats on and adjacent to unit.
- (5) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves will best meet the integrated resource objectives: (1) It converts the unit to a more vigorous young stand. (2) A substantial part of net volume available will be harvested. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Fish habitats will be maintained by protecting streams and V-notches. (5) Site quality will be maintained or improved, due to increased soil functioning. Reserve trees and enclaves of various densities will provide large defective hemlock and spruce for vertical diversity and cavity nesting habitat, as well as seed sources for higher value timber species. (6) Logging systems feasibility is good for a heavy partial cut. Reserves will be located in most windfirm sites to ensure that some trees will be left standing for structural diversity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Original boundaries were modified to reduce visual impacts and reduce the potential for stream temperature changes. The original eastern boundary has been modified to a more natural shape by extending to the southeast. This also provides a more logical harvest setting. The major NE boundary follows the Class II stream. Remaining boundaries were located to conform to timber types, major breaks in topography, and logical harvest settings. All boundaries avoid unstable slopes in V-notches.

### F. Forest Productivity Activities:

Soil mixing and warming from logging disturbance and projected blowdown of reserve trees will result in increased soil biological activity and decomposition rate, potentially increasing productivity. Natural regeneration of Sitka spruce by retention of seed trees on unit edges and relatively windfirm locations within unit.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

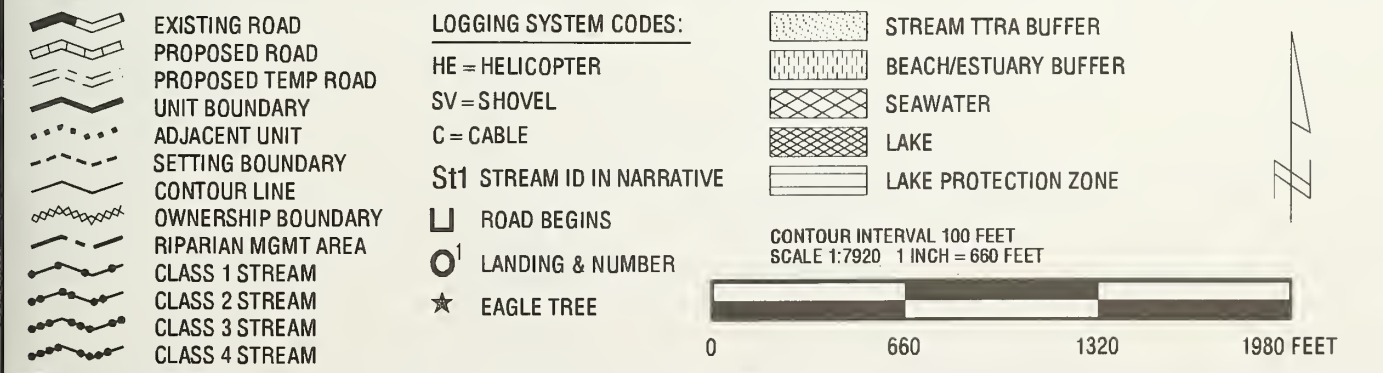
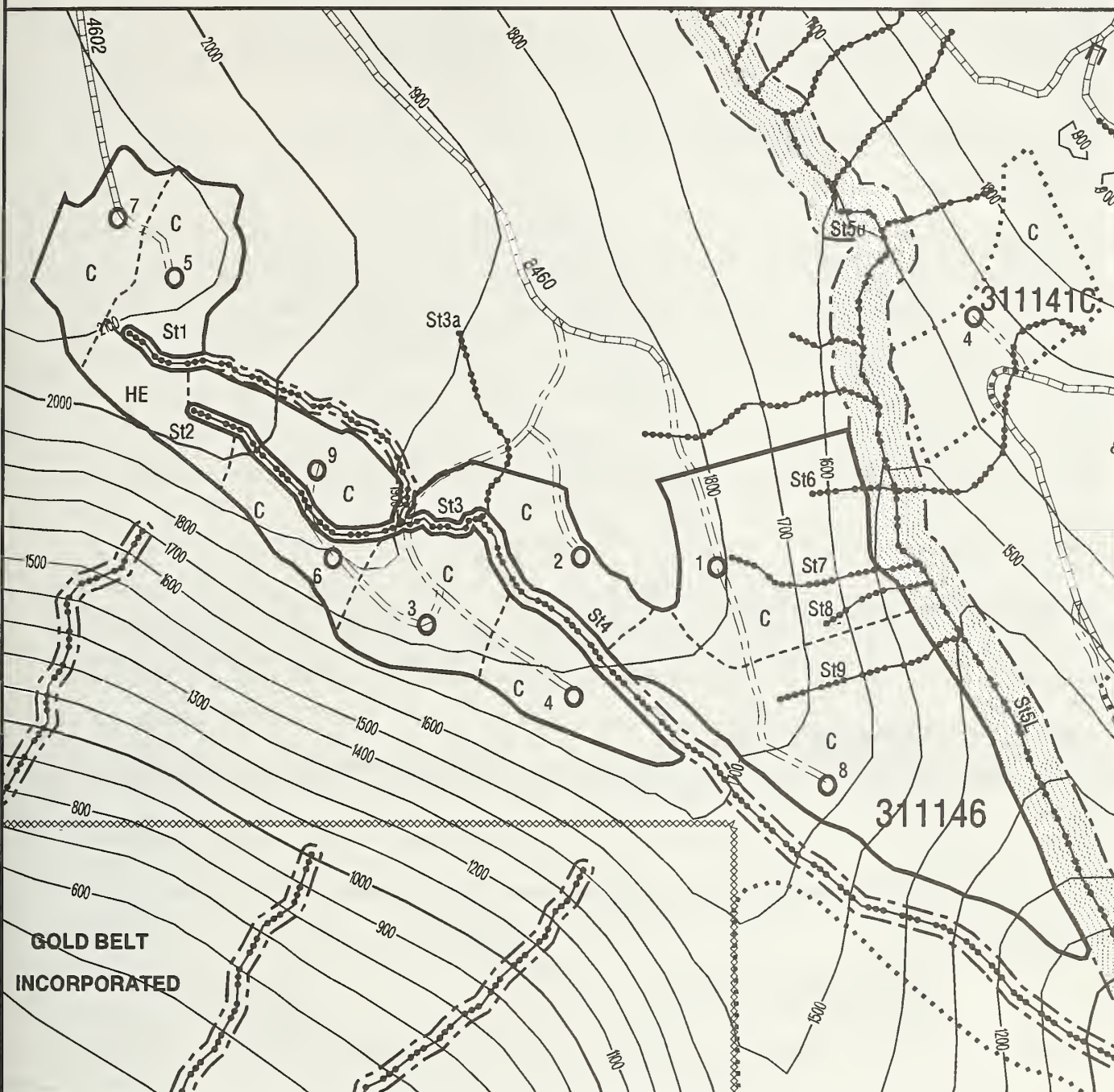


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 8 VCU: 81 UNIT: 311146 ALTERNATIVE(S): 2 3 4 5 ALL SETTINGS ARE HE IN ALTS. 3 4

ACRES: 83.94 TOTAL NET MBF: 1052.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 784 PRINT NO.: 43





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 311199

MAP# 15

## STAND CHARACTERISTICS

This low-elevation unit is located on SE-facing slope, adjacent to heavily-logged native corporation lands. The unit directly borders Unit 311147, a prescribed clearcut. Slopes range from moderate to steep. A buffered Class III and Class II stream borders the unit on the NE and E. Mountain hemlock forest series; mountain hemlock/blueberry plant association most common. Multi-aged overmature (250-350 year old) mountain and western hemlock, scattered Sitka spruce. Low site productivity, Vol. Class 4. Moderately defective. Little current windthrow, but high potential due to S-E aspects and nearness to saltwater. Scattered conifer advance growth, variable condition. Shrub cover moderate over most of unit, but more dense in east portions at lower elevation.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Unit is designated for helicopter logging. No roads, no landings in unit. Use landing on Goldbelt Road #2000.

**Visual Resource Management:** VQO is Maximum Modification.

**Soils / Geology:** Originally Class 4 soils - high hazard. Reclassified to Class 3 after field review. Deep V-notches, now buffered. Opportunities to retain trees on site to mitigate potential soil problems. Opportunity to use helicopter logging to avoid road building in sensitive areas. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1, 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 3, 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 5 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Potential mountain goat habitat.

**Cultural / Recreation / Subsistence:** None noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats adjacent to unit.
- (5) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

The selected alternative is **shelterwood with reserves**, best suited to this unit for these reasons: (1) Converts the area to more vigorous young stand. (2) Most of the net available volume will be harvested, since a large portion of the reserves will be cull trees. (3) Retention of various amounts of reserve trees and islands, combined with feathered edges will allow VQO to be met. The treatment will mitigate effects of previous harvest on nearby lands. (4) Fish habitats will be maintained by protecting streams and V-notches. (5) Site quality is likely to be maintained, but probably not improved. Minimal soil disturbance will do little to bring mineral soil into the biologically active layer.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

This unit is a portion of a considerably larger area that was split to accommodate different harvest systems. It includes those areas suitable for cable logging, where the effects of harvest on adjacent Goldbelt, Inc. lands have added to cumulative visual impacts. The area as delineated follows logical timber types and avoids areas with high hazard soils.

### Forest Productivity Activities:

Soil mixing from windthrow of reserve trees is expected to reduce podzol development on limited areas. Exposure of mineral soil on windthrow mounds is expected to provide favorable seedbed for spruce.

## MONITORING PLAN

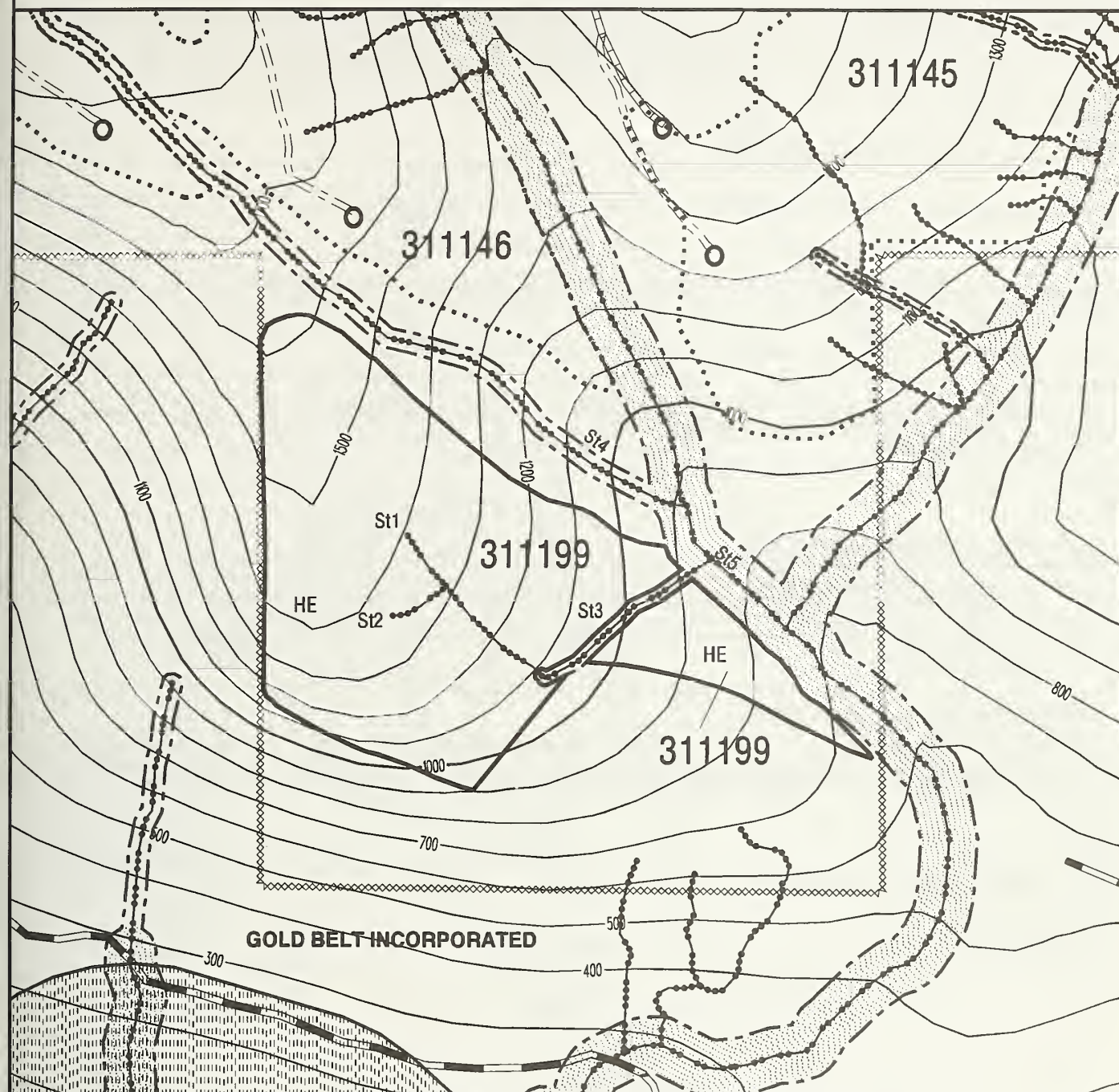
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 15 VCU: 81 UNIT: 311199 ALTERNATIVE(S): 2 3 4 5

ACRES: 52.55 TOTAL NET MBF: 572.1 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 784 PRINT NO.: 42



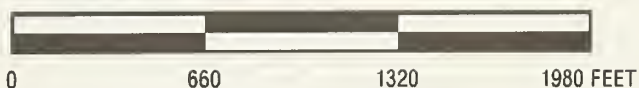
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 312143E

MAP# 11

## STAND CHARACTERISTICS

High-elevation stand, just below ridgetop, moderately steep, on SE to S aspects. A Class III stream in a V-notch borders the west unit boundary. Muskeg borders the top of the unit. Ground is broken, with rocky outcrops, benches, and steep pitches. Risk of mass movement is generally moderate. Sitka spruce - western hemlock forest series; predominant plant assoc. Sitka spruce-western hemlock/Vaccinium-devils club. Functionally even-aged overmature Sitka spruce and western hemlock. Productive site, mostly Vol. Class 6, with inclusion of Vol. Class 4. Average defect. Little evidence of recent windthrow; moderate risk of windthrow following harvest. Overstory age is generally 350 years and older. Understory vegetation generally open, with low Vaccinium, with patches of devils club, skunk cabbage, and shield fern. Scattered conifer advance growth in poor condition.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area best suited for helicopter logging. Landing will be in main Goldbelt road south of unit.

**Visual Resource Management:** VAC is Intermediate; VQO of Maximum Modification. Reserve trees would mitigate visual impacts.

**Soils / Geology:** Slide area along east boundary, in Vol. Class 4 area. BMPs 13.2, 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1-3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** No special concerns noted. Opportunity for reserving live trees and snags for habitat structural diversity.

**Cultural / Recreation / Subsistence:** None noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

**Shelterwood with reserves** best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) More than 90% of net volume available will be harvested, nearly as much as clearcutting. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Fish habitats will be maintained by buffering Class III stream and protecting vegetation in the buffered V-notch. (5) Site quality will be maintained or improved, due to increased soil functioning. Reserve trees provide large defective hemlock and spruce for vertical diversity, cavity nesting habitat, and seed sources for higher value timber species. Reserve groups will provide structural diversity and ecological functions. (6) Logging systems feasibility is good for a heavy partial cut. Selected alternative meets all integrated resource objectives.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit was originally part of 312143, but was split into east and west units to recognize topographical and operational distinctions. The neck at the top of unit 312143E was deleted due to soils concerns. The eastern boundary follows the edge of a stable slope configuration, avoiding the slide area to the east. The unit is bounded on the south by Gold Belt Corp. lands. On the west, the unit follows the buffered Class III stream.

### Forest Productivity Activities:

Soil mixing from windthrow of reserve trees is expected to reduce podzol development on limited areas. Exposure of mineral soil on windthrow mounds is expected to provide favorable seedbed for spruce.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist

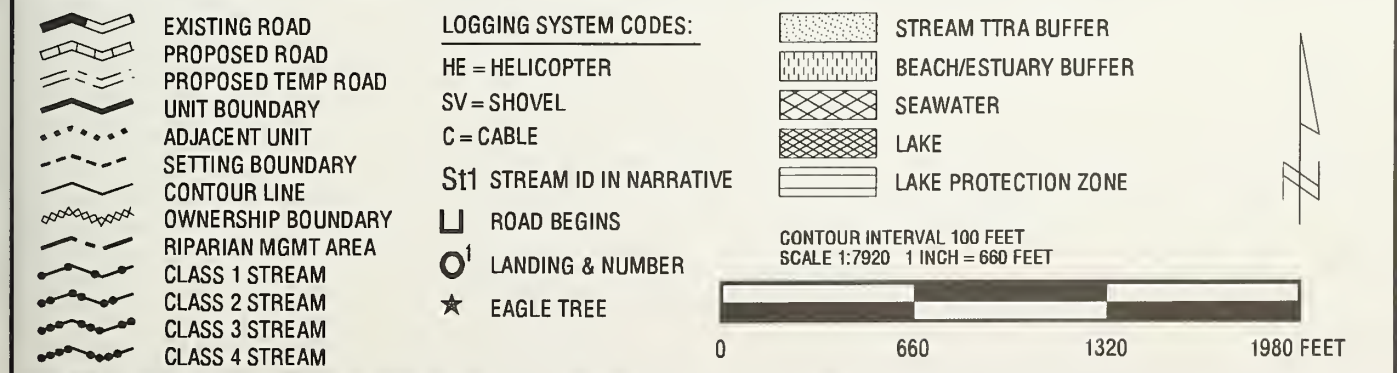
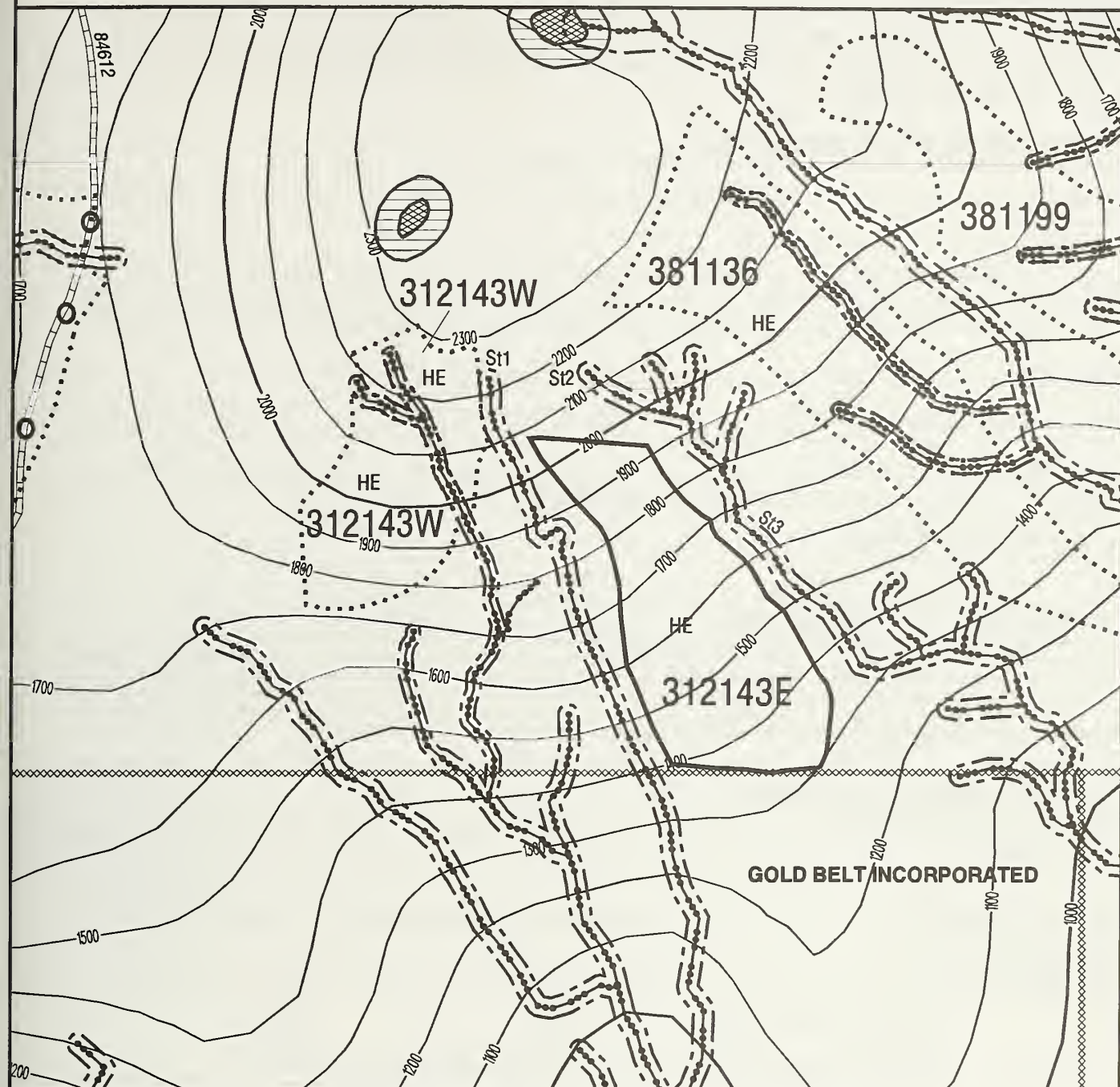


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 11 VCU: 81 UNIT: 312143E ALTERNATIVE(S): 2 3 4 5

ACRES: 20.25 TOTAL NET MBF: 444.1 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 784 PRINT NO.: 35





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 312143W

MAP# 10

## STAND CHARACTERISTICS

High-elevation stand, just below ridgetop, moderately steep, on S to SW aspects. A short reach of a Class III stream in a V-notch borders the northwest corner of the unit. Ground is broken, with rocky outcrops, benches, and steep pitches. Risk of mass movement is generally moderate. Sitka spruce - western hemlock forest series; predominant plant assoc. Sitka spruce-western hemlock/Vaccinium-devils club. Functionally even-aged overmature Sitka spruce and western hemlock. Productive site, mostly Vol. Class 6, with inclusion of Vol. Class 4. Average defect. Little evidence of recent windthrow; moderate risk of windthrow following harvest. Overstory age is generally 350 years and older. Understory vegetation generally open, with low Vaccinium, patches of devils club, skunk cabbage, and shield fern. Scattered conifer advance growth in poor condition. Moderate windthrow risk.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter logging. Snag retention is a safety issue. Use Goldbelt road south of unit.

**Visual Resource Management:** Lower part of unit: VQO is Partial Retention; VAC is Intermediate. All other areas have a VQO of Modification, and VAC of Intermediate. Reserve trees would mitigate visual impacts.

**Soils / Geology:** BMPs 12.5, 13.2, 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1-3, 5, 5a, 6-8 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 4 - See Class IV overall prescription in the Resource Opportunities and Constraints section in Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Stream 3(top) - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** No special concerns noted. Opportunity for reserving live trees and snags for habitat structural diversity.

**Cultural / Recreation / Subsistence:** No special concerns were noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) More than 90% of net volume available will be harvested, nearly as much as clearcutting. (3) Unit design, location, and silv. treatment will allow the VQO of Modification to be met. Increased reserve tree density combined with vegetative screening, at lower portions of unit will meet Partial Retention objective. (4) Channel conditions will be maintained by buffering Class III stream and protecting vegetation in the buffered V-notch. (5) Site quality will be maintained or improved, due to increased soil functioning. Reserve trees provide large defective hemlock and spruce for vertical diversity, cavity nesting habitat, and seed sources for higher value timber species. Reserve groups will provide structural diversity and ecological functions. (6) Logging systems feasibility is good for a heavy partial cut. Selected alternative meets all integrated resource objectives.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit was originally part of 312143, but was split into east and west units to recognize topographical and operational distinctions. The boundaries follow the edge of stable slope configurations.

### Forest Productivity Activities:

Soil mixing from windthrow of reserve trees is expected to reduce podzol development on limited areas. Exposure of mineral soil on windthrow mounds is expected to provide favorable seedbed for spruce.

## MONITORING PLAN

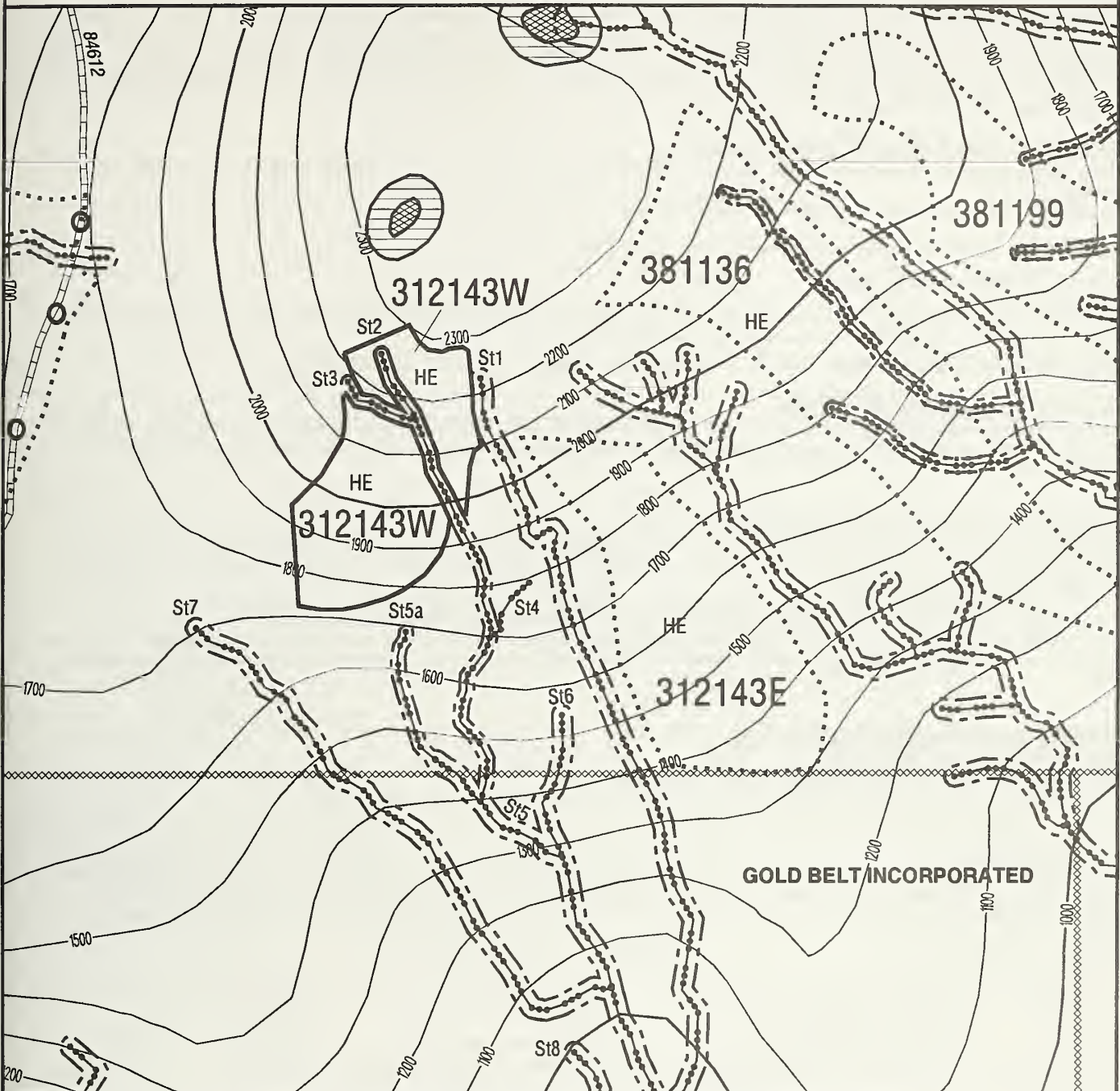
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 10 VCU: 81 UNIT: 312143W ALTERNATIVE(S): 2 3 4 5

ACRES: 11.96 TOTAL NET MBF: 263.8 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 784 PRINT NO.: 35



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321004

MAP # 45

## STAND CHARACTERISTICS

Multiple storied/uneven stand in the mt. hemlock and w. hemlock/y. cedar series. This stand also has minor amounts of Sitka spruce in the overstory. The stand is composed of small to medium size, moderate quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 30% on aspects from W to NW. The unit is bounded by muskeg, low site areas and a stream protection buffer to the SW. Overstory ages are 150 to 300 years old with moderate defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage and defoliators. The understory is 41-60% stocked with 20 to 80 year old W. hemlock and Sitka spruce which occur groups throughout with fair to good vigor. Ground cover is moderately dense *vaccinium* associated with rusty menziesia skunk cabbage. No significant new windthrow found. Site is poor to fair over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Highlead yarder. Landing will be used as main Helicopter landing for units 321002, 321003 and 321 group selection harvests. Unit not suitable for partial cut.

**Visual Resource Management:** Maximum Modification, flat terrain and foreground trees will hide unit.

**Soils / Geology:** No concerns, moderate terrain is inherently stable.

**Fisheries / Watershed:** No concerns identified.

**Wildlife:** Suitable habitat for red breasted sapsucker and black bear. Retain green trees and snags to maintain habitat structure. Bald eagle and otter habitat have been preserved due to unit reconfiguration. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** Cultural- area above 100 foot elevation, outside of high potential area. Recreation- no concerns.

## INTEGRATED RESOURCE OBJECTIVES

The major resource objective noted is to maintain some stand structure for habitat for the species mentioned in the wildlife section. However retention in large part will be difficult due to the logging the systems proposed for this unit and the fact that a larger than normal helicopter landing will be located in the center of the unit. Therefore reserve trees and snags will be limited to the edges of the unit.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcutting with reserves ( northeast portion of the unit): The objectives of clearcutting with reserves, in this unit, is to provide habitat for the species mentioned in the wildlife section. Trees that are not windthrown will provide long term structural diversity and enhance wildlife habitat. Select trees that best meet the following criteria:

- 1) Apparent cull or high defect yellow cedar.
- 2) Windfirm trees that will contribute to long term stand structure and some y. cedar snags or firm broken off hemlock snags at the edge of the unit.

Clearcutting with reserves is considered the best design for the outer portions of the unit especially the northern and eastern portions.

Clearcutting (southeast portion of the unit): Since the landing at the end of road 84959 will be enlarged for helicopter use the adjacent areas (about 200 foot radius at the landing) should be free of all material that can interfere with helicopter yarding i.e. tall trees and snags. Retain pockets thrifty reproduction, as much as possible, when found.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit is bounded by lowsites and muskeg lands to the north, south, east and west.

Clear-cut with reserves in the north east portion of the unit, about 1/2 the area and clearcutting in the southwest 1/2 of the unit.

### Forest Productivity Activities:

Expose mineral soil during yarding activities, this is designed to reduce the formation of podzol soils. Also open southwest area, allowing it to warm, which will increase biological activity. The northeast area will have scattered blowdown which will help the mixing of organic and mineral soils layers, which will create a pit and mound microtopography. Favor yellow cedar and Sitka spruce during precommercial thinning. Also weed out any mistletoe and deformed residual reproduction at that time.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 45 VCU: 82 UNIT: 321004 ALTERNATIVE(S): 4

ACRES: 7.54 TOTAL NET MBF: 88 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 24 ROLL NO.: 888 PRINT NO.: 197



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321006

MAP # 54

## STAND CHARACTERISTICS

Functionally even aged in volume class 4 and 5 and multiple storied in volume class 6 stand in the w. hemlock series. This stand also has trace amounts Sitka spruce in the overstory. The stand is composed of medium to large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 10 to 60% on aspects from NE to N. The Overstory ages are 200 to 300 years old with moderate defect and significant amounts of mistletoe on lower slopes, mechanical/animal damage, old defoliation damage in tree tops. The understory is <20% stocked on lower slope, 20-40% stocked on upper slope stocked with 20 to 40 year old W. hemlock and Sitka spruce which occur in groups on lower slopes and evenly on upper slopes throughout with fair to good vigor. Ground cover is sparse to dense vaccinium associated with (rusty) menziesia and shield fern. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Northern setting is slackline with 90 foot tower. Unit is otherwise unsuitable for partial cut. Retention of snags is a safety issue. Skyline extensions outside unit. 200 feet of temporary road needed.

**Visual Resource Management:** VQO- Maximum Modification. Viewed in middle ground.

**Soils / Geology:** BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Streams 2 and 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 4 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 5 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Goshawk survey- no evidence. Suitable habitat for red breasted sap sucker and black bear. Recommend leave trees and snags for habitat structure. and snag density. Shelterwood with reserves was adopted for this unit. Avoid disturbance to nesting goshawks known to be in vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Regeneration of understocked stand, (in VCs 4 & 5) with diseased, mature overstory for programmed timber yield.
- (2) Release and sanitation of understory (in volume class 6) for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention on southern portion of unit, in volume class 6, around the switchback road.
- (4) Retain minor amounts of green cull or high defect trees in the volume class 4 & 5 areas for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative for several reasons: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserve trees where they are feasible with logging systems provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of harvest impacts. Reserves should be green culls or less common species such as Sitka spruce or yellow cedar where available. (3) Spacing of reserve allows for release of a thrifty existing understory and intermediate portion of the stand where applicable. (4) Reserve trees and reproduction will provide continued stand structure for habitat. Clearcut and clearcut with reserves would not mitigate visual impacts or provide as many snags and green trees for wildlife habitat. Defer would not provide a timber yield during this harvest.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The north boundary is between the 300 to 400 foot elevation level at logical yarding limits. The west is bounded by a Class II creek.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Retain patches of advanced reproduction.
- (3) Schedule precommercial thinning. Favor S. spruce and Y. cedar when found. Remove trees with dwarf mistletoe when found.

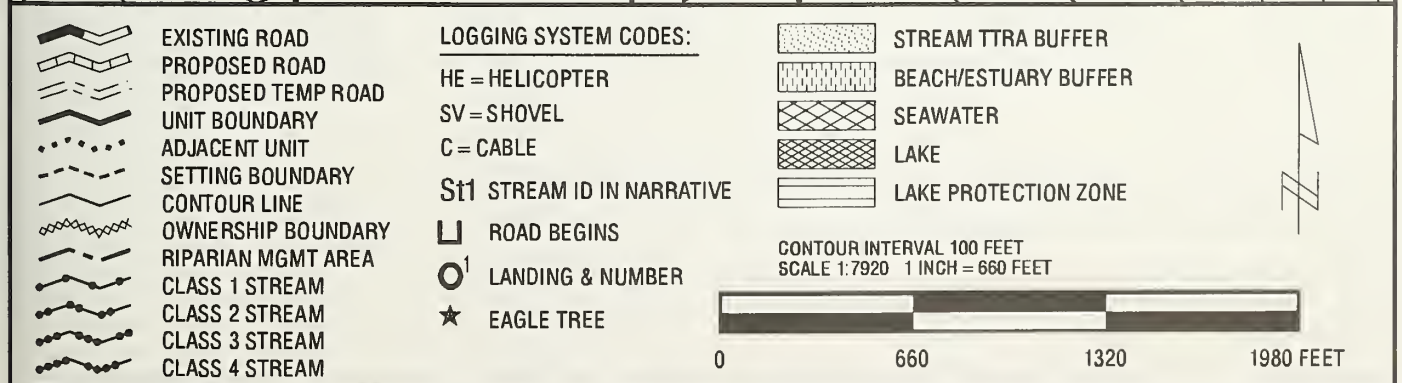
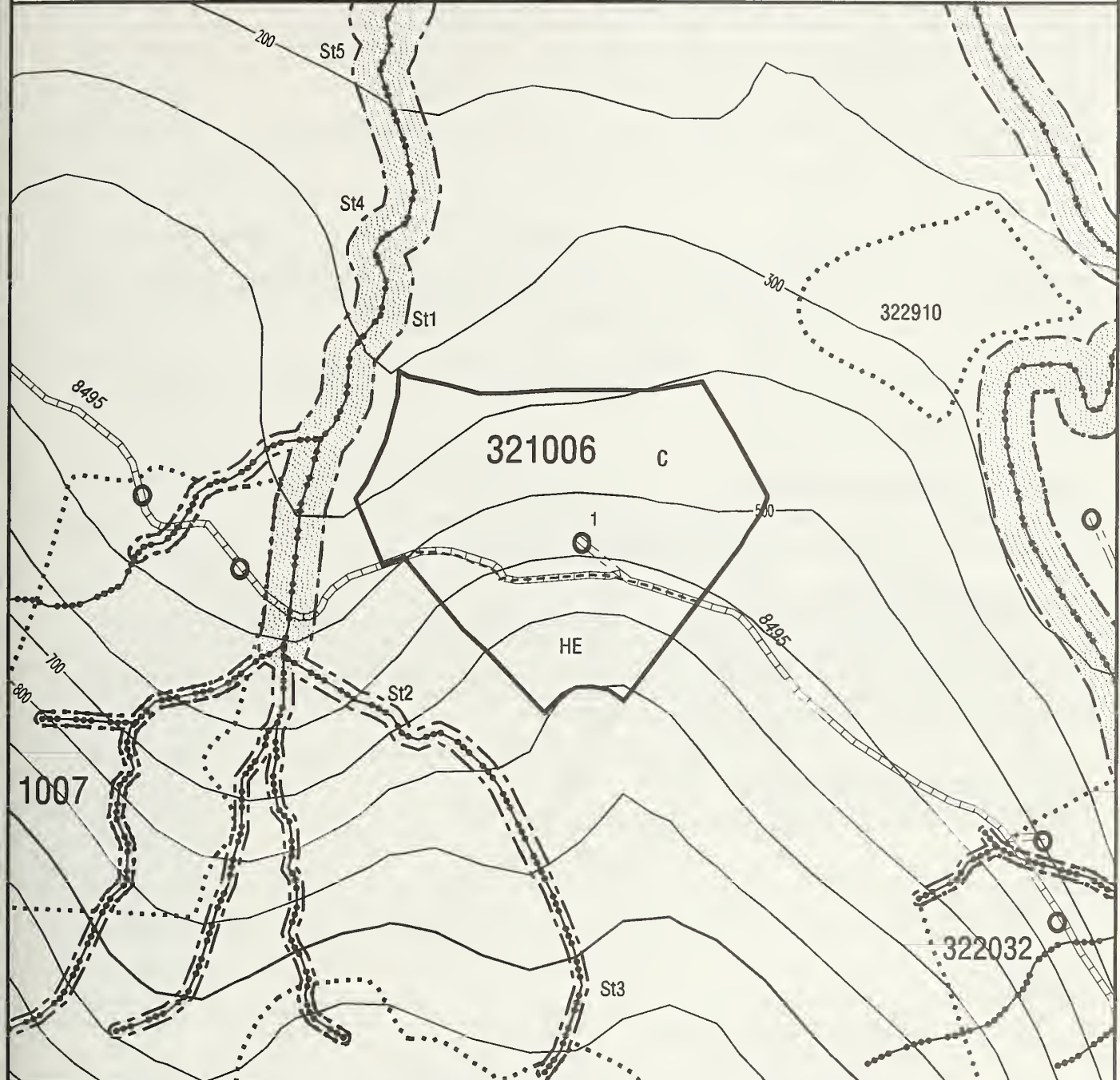
## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 54 VCU: 82 UNIT: 321006 ALTERNATIVE(S): 4 7 SETTING HE EXCLUDED IN ALT. 7  
 MAXIMUM ACRES: 38.49 TOTAL NET MBF: 805.8 QUAD(S): SUMB5 QUARTER QUAD(S): SE  
 PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 125





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321007

MAP # 59

## STAND CHARACTERISTICS

Multiple storied/ unevenaged stand in the mixed conifer/ w. hemlock/y. cedar series. The stand is composed of small to large, moderate to high quality sawtimber with minor amounts of utility pulp. Slopes range from 10 to 90% on NE aspect. The eastern portion of the unit is bounded by a class II V- notch creek. Overstory ages are 200 to 300+ years old with moderate defect and minor amounts of conk mistletoe and windthrow. The understory is 40-60% 60% stocked with 20 to 50 year old w. hemlock which occurs both in groups and in small evenaged patches throughout, with fair to good vigor. Ground cover is sparse to moderately-dense *vaccinium* associated with devils club and skunk cabbage. Scattered new windthrow found on upper slopes. Site is fair over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Skyline on north setting. Suitable for heavy partial cut. Retention of snags a safety hazard. Multiple stump anchors req'd. Southern portion of unit is helicopter to landing #2.

**Visual Resource Management:** Maximum Modification VQO - visible from middleground.

**Soils / Geology:** Class 3 soils.

**Fisheries / Watershed** (1) Streams 2, 4, 5, 6, 7 and 8 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Stream 1 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Reserve green trees and snags to maintain habitat for red breasted sapsucker, marten and black bear. Shelterwood with reserves was adopted for this unit. Avoid disturbance to nesting goshawks known to be in vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** no issues.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Minimize sediment yield to fish bearing streams.
- (2) The overriding resource direction points to the retention of green timber for visual and wildlife objectives.
- (3) Retention will be possible to some degree using the proposed skyline logging system.
- (4) There is a significant amount advanced regeneration that can be retained with an overstory removal.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative for several reasons: (1) Provides a high volume return from a stand that is past its peak productivity.(2) Reserve trees where they are feasible with logging systems provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of harvest impacts. Reserves should be green culls or less common species such as Sitka spruce or yellow cedar where available. (3) Spacing of reserve allows for release of a thrifty existing understory and intermediate portion of the stand where applicable. (4) Reserve trees and reproduction will provide continued stand structure for habitat and will serve to mask the switchback roads in this portion of the unit for visual objectives. Clearcut and clearcut with reserves would not mitigate visual impacts or provide as many snags and green trees for wildlife habitat. Defer would not provide a timber yield during this harvest.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit is bounded in the northeast by a class II buffer and in the north by a low site area.

### Forest Productivity Activities:

During precommercial thinning of younger stands favor y. cedar and Sitka spruce when found. Remove any reproduction that is infected with dwarf mistletoe.

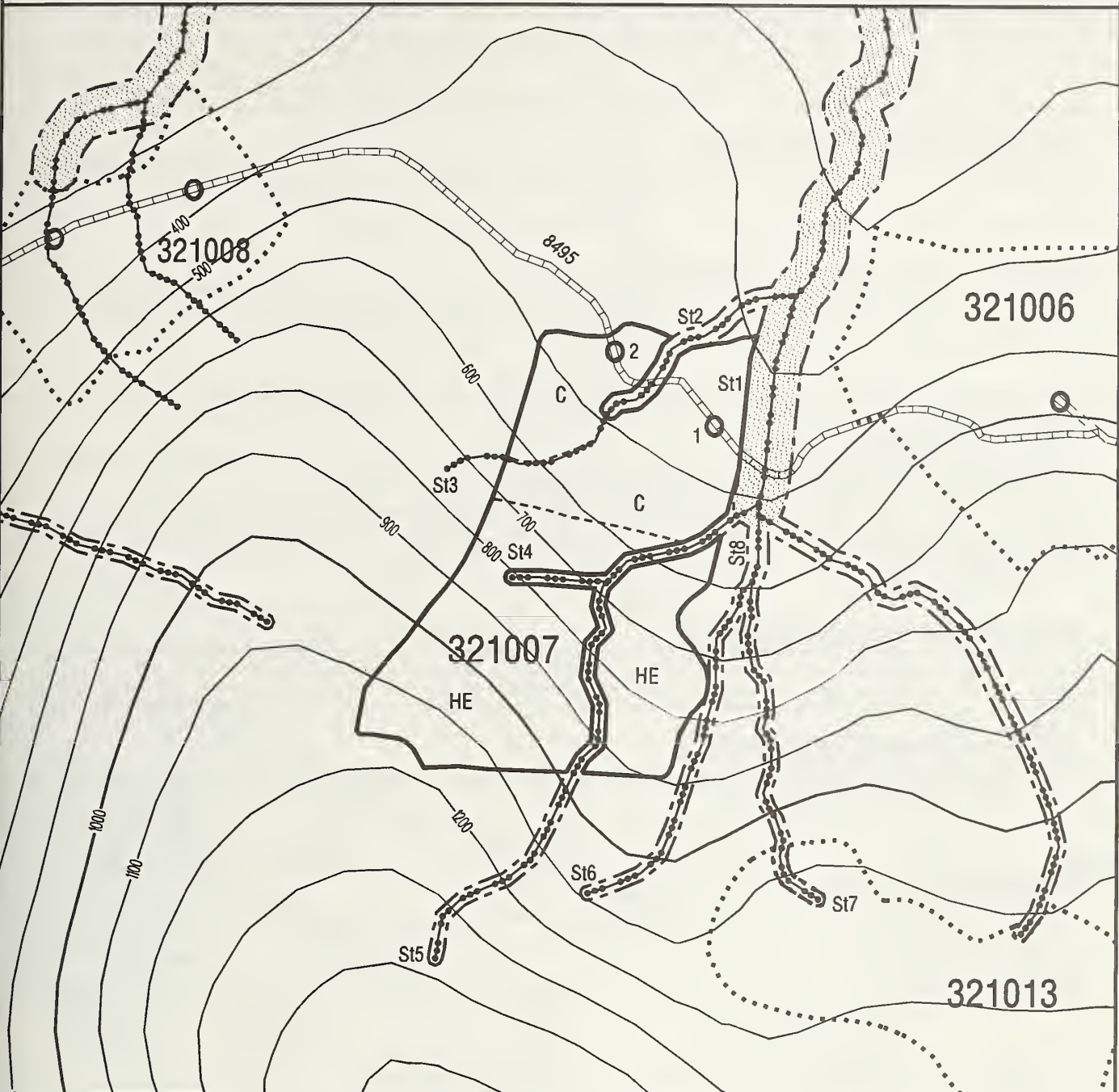
## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy.& reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if>700 tpa, VC5+,resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 59 VCU: 82 UNIT: 321007 ALTERNATIVE(S): 4 7 SETTINGS HE EXCLUDED IN ALT. 7  
 MAXIMUM ACRES: 40.96 TOTAL NET MBF: 549 QUAD(S): SUMB5 QUARTER QUAD(S): SE  
 PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO: 117



<ul style="list-style-type: none"> <li> EXISTING ROAD</li> <li> PROPOSED ROAD</li> <li> PROPOSED TEMP ROAD</li> <li> UNIT BOUNDARY</li> <li> ADJACENT UNIT</li> <li> SETTING BOUNDARY</li> <li> CONTOUR LINE</li> <li> OWNERSHIP BOUNDARY</li> <li> RIPARIAN MGMT AREA</li> <li> CLASS 1 STREAM</li> <li> CLASS 2 STREAM</li> <li> CLASS 3 STREAM</li> <li> CLASS 4 STREAM</li> </ul>	<p><b>LOGGING SYSTEM CODES:</b></p> <p>HE = HELICOPTER                  SV = SHOVEL                  C = CABLE</p> <p>St1 STREAM ID IN NARRATIVE</p> <p> ROAD BEGINS</p> <p> LANDING &amp; NUMBER</p> <p> EAGLE TREE</p>	<ul style="list-style-type: none"> <li> STREAM TTRA BUFFER</li> <li> BEACH/ESTUARY BUFFER</li> <li> SEAWATER</li> <li> LAKE</li> <li> LAKE PROTECTION ZONE</li> </ul> <p>CONTOUR INTERVAL 100 FEET                  SCALE 1:7920 1 INCH = 660 FEET</p> <div style="text-align: center;"> </div>
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# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

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## UNIT IDENTIFICATION

UNIT #: 321008

MAP # 53

## STAND CHARACTERISTICS

Even aged functional stand in the w. hemlock series. This stand also has Sitka spruce in the overstory. The stand is composed of medium to large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 10 to 70% on a NW aspect which are bisected by 1 significant V-notch class III creek. The northwest line of the unit is bounded by a large low site/muskeg area. Overstory ages are 200 to 300 years old with moderate defect and significant amounts of mistletoe, mechanical/animal damage, and windthrow. In the south portion of the unit, the understory is 20-40% stocked with 25+ year old w. hemlock and Sitka spruce which is of good vigor and quality. Ground cover is moderate to dense Vaccinium associated with rusty menziesia, skunk cabbage and devils club. Significant windthrow found in the southwest corner resulted in stand of reproduction. Site is good over the unit as a whole. Mistletoe is limited to lower slopes on the northern portion of the unit.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** 70-90 foot tower slackline. Unit altered to avoid fish bearing streams in the northeast corner, to avoid Goshawk area, and locate the unit to mitigate visual concerns. Unit not suited for partial cut. Snag retention is a safety hazard. Skyline extensions outside unit. Multiple anchors may be required.

**Visual Resource Management:** VQO: Maximum Modification. Viewed from visual priority travel route on Port Houghton.

**Soils / Geology:** Class III soils rating. BMPs 13.2 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1 and 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 3 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Suitable habitat for red-breasted sap sucker, martin, and black bear. Reserve trees and snags to maintain habitat diversity. Avoid disturbance to nesting goshawks known to be in vicinity. Prior to harvest, search for nest to ensure goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** No Concerns

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of partially understocked stand, volume class 5 with diseased, mature overstory for programmed timber yield.
- (2) Regeneration of stand in volume class 6, that has significant recent mortality, for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention on southeast portion of unit, in volume class 6, by using feathered edges between settings
- (4) Retain minor amounts of green cull or high defect trees in the volume class 5 & 6 areas for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) One end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clear cut with reserves was selected because it best meets resource objectives: (1) Provides a high volume return from a stand that is past its peak productivity.(2) Reserves individual trees when feasible and provides feathered or scalloped edges between settings, especially on the upper slope that may be visible from Port Houghton. Provides good phenotypic trees for vertical and cavity nesting habitat structure and softening of visual impacts. Reserves should be green culls or less common species such as Sitka spruce or yellow cedar, when found. Feathered edge between settings will retain about 3 to 4 acres of timber on the upper slopes of the unit above the road.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit is bounded to the north by a class II buffer and low site area, to the west by advanced reproduction, to the east by a change in slope and aspect and to the south by the extent of yarding capabilities.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Retain patches of advanced reproduction.
- (3) Schedule precommercial thinning. Favor S. spruce and Y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

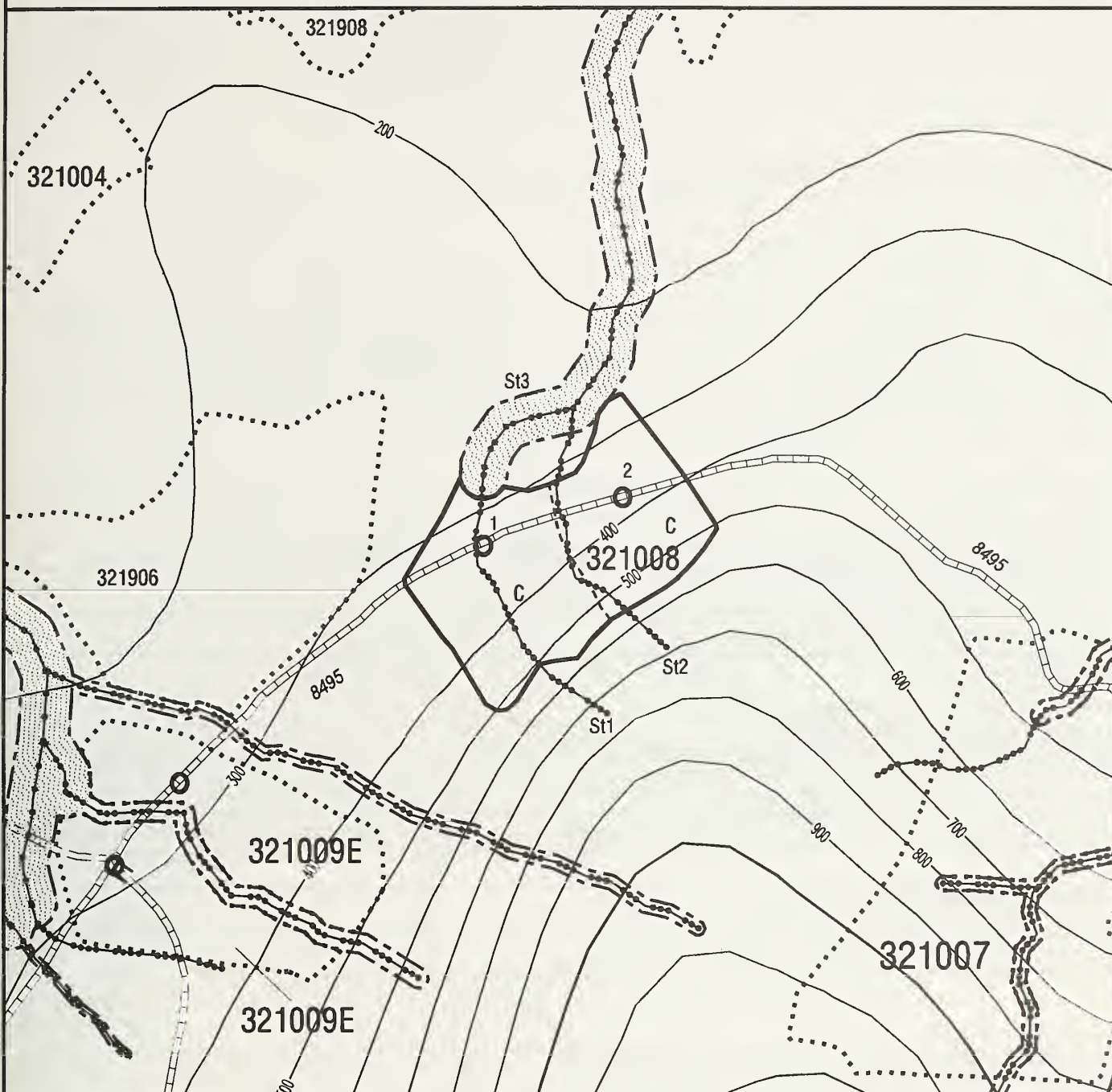
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 53 VCU: 82 UNIT: 321008 ALTERNATIVE(S): 2 4 7

ACRES: 20.22 TOTAL NET MBF: 608.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 117



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

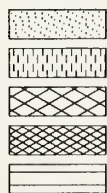
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○<sup>1</sup> LANDING & NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321009 E, W

MAP # 61, 56

## STAND CHARACTERISTICS

**West Subunit:** Mosaic stand in the w. hemlock series. **East Subunits:** Functionally evenage stand in the w. hemlock and S. spruce series with minor amounts y. cedar in the overstory. The stand is composed of medium to large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 50% on aspects from W to NW which are bisected by 1 significant class-I V-notch creek which bounds and splits the unit into east and west subunits. Overstory ages are 150 to 320 years old with moderate defect and significant amounts of mistletoe, mechanical/animal damage windthrow. The understory is <20% stocked with 20+ year old w. hemlock and Sitka spruce which occur in groups with poor to fair vigor. Ground cover is sparse to dense *Vaccinium* associated with devils club, skunk cabbage. Scattered new windthrow found throughout the unit. Site is fair to good over the unit as a whole. The east subunit is predominately dense hemlock in the volume class 6 level. The western subunit is more a mosaic of volume class 4, 5, and 6 on gentler slopes and between a major class II stream and the previously mentioned class I fork of that stream.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Settings 1 & 2 Running skyline, settings 1 & 3 90" tower. Unit is bisected into 3 sub units by a class I and class III stream and buffer. South side of western unit suitable for partial cut. Fall timber away from buffer. 2000 feet of temp road that crosses class I stream buffer, is needed. Tail trees will be required in 100 ft. TTRA buffer.

**Visual Resource Management:** VQO: Maximum Modification.

**Soils / Geology:** USFS originally mapped as class 3 soil stability in east area. Soil class should be lower class 2. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 2, 2a, 3, 8 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 2b (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (4) Streams 4, 5, 6, 7 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Suitable habitat for red-breasted sapsucker, marten, and black bear. Reserve trees and snags to maintain habitat diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of partially understocked stand, volume class 4 & 5 with diseased, mature overstory for program timber yield.
- (2) Regeneration of stand in volume class 6, that has significant recent mortality, for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention on center portion of the eastern subunit(class III stream buffer), in volume class 6, by using feathered edges between settings and rounding unit corners on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the south setting/ western subunit for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) One end suspension.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves was selected for the east subunits and southern portion of the western subunit because: (1) Provides a high volume return from a stand that is past its peak productivity.(2) Reserve some individual trees when feasible and feather or scallop edges between settings especially on the upper slope that may be visible from Port Houghton. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Reserves should be green culls or less common species such as Sitka spruce or yellow cedar, when found. Also during final layout round the corners of the unit on the upper slopes. **West subunit:** Southern setting is clearcut with reserves to retain vertical and cavity habitat structure. This retention will also assist soil mixing during windthrow events. Leave green culls and high defect hemlock and a proportional amount of S. spruce and Y. cedar when found. Clearcut for north setting so that a side by side comparison is available for retention areas.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

**East subunit:** Bounded to the west by Class I buffer to the south by a Class IV creek to the north by a class III creek and east by reserve settings. The unit was reconfigured and reduced in size from the paper plan to mitigate creek buffers and visual impacts.

**West subunit:** This area is triangle shaped and is bounded by the fork of a Class I stream buffer on two sides and a Class II stream buffer to the south.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Retain patches of advanced reproduction.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

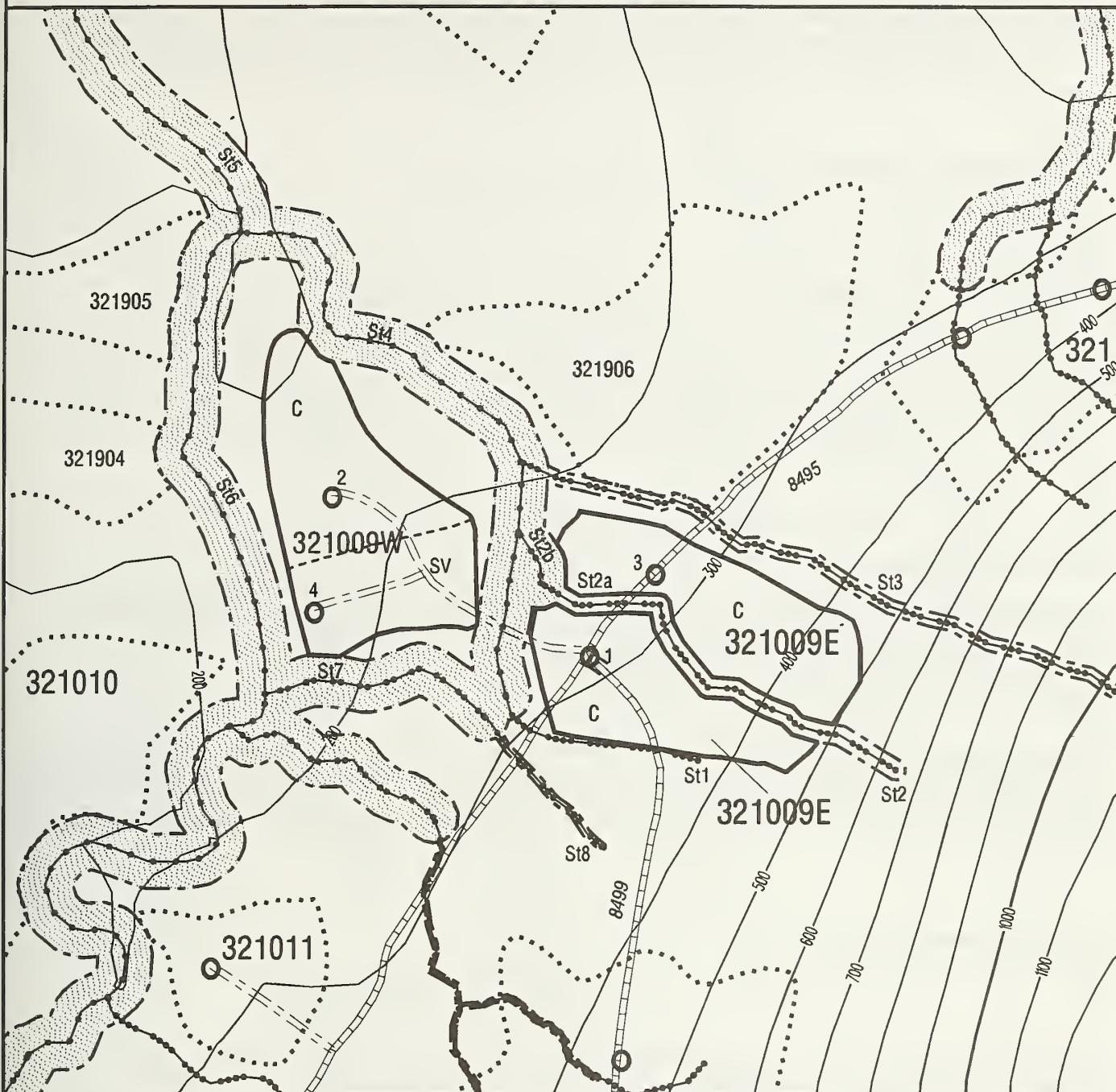


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 56,61 VCU: 82 UNIT: 321009 ALTERNATIVE(S): 2 4 7

ACRES: 34.38 TOTAL NET MBF: 824.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 24 ROLL NO.: 888 PRINT NO.: 196



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321010

MAP # 65

## STAND CHARACTERISTICS

Mosaic of two evenage functional stands in the w. hemlock and mixed conifer series. This stand also has minor amounts of Sitka spruce and mt. hemlock in the overstory. The stand is composed of medium to large, moderate quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 30% on a NW aspect. Overstory ages are 250 to 275 years old with moderate to high defect and significant amounts of mistletoe, mechanical/animal damage, and old defoliation resulting in dead tops. The understory is 20-40% stocked with 20 to 30 year old w. hemlock and Sitka spruce which occurs in a group in the volume class 4 area with good vigor. Ground cover is sparse to dense *vaccinium* associated with rusty menziesia. Scattered new windthrow found throughout. Site is fair over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Skyline yarder. Moderate slopes. 0.5 miles of temporary road required.

**Visual Resource Management:** VQO Maximum Modification. Viewed in the background from visual priority travel route. Foreground trees should minimize visual impacts. Should meet VQO.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Streams 1 and 3 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Stream 2 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Stream 4 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 5 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No harvest within the Riparian Management Area, defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. Recommend dropping setting #2 to provide for windfirm zone.

**Wildlife:** Suitable habitat for red-breasted sap sucker, martin, and black bear.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of partially understocked stand, volume class 4 & 5 with diseased, mature overstory for program timber yield.
- (2) Regeneration of stand in volume class , that has significant infestation of dwarf mistletoe, for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by reconfiguration and reduced unit size.
- (4) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut best meets resource objectives because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reduces or eliminates dwarf mistletoe in new stand, almost all trees have some infection. (3) Provides an adaptive management side-by-side comparison with adjacent retention areas. (4) Provides for species diversity through retention of Sitka spruce and yellow cedar along the unit boundary for seed source. (5) Allows for retention of the patch of thrifty advanced reproduction in the south setting against the west line.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary is defined by a Class I buffer and reserve area. The west boundary is defined by low site lands and a Class I buffer.

### Forest Productivity Activities:

- (1) Retain patches of advanced reproduction.
- (2) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (3) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if>700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

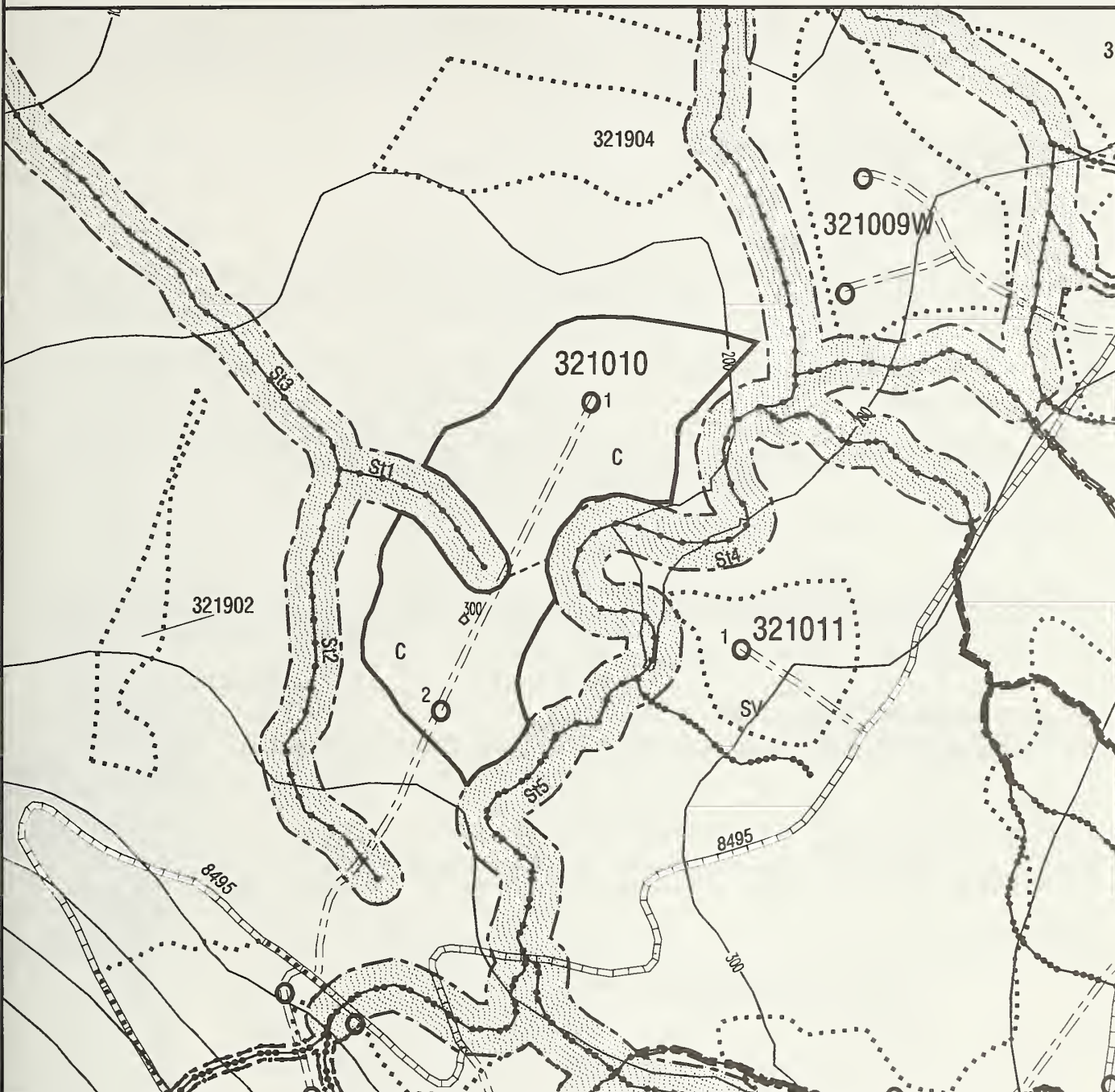


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 65 VCU: 82 UNIT: 321010 ALTERNATIVE(S): 4 7

ACRES: 28.93 TOTAL NET MBF: 495.1 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 24 ROLL NO.: 888 PRINT NO.: 196



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321011

MAP # 70

## STAND CHARACTERISTICS

Functionally even aged stand in the w. hemlock/y. cedar series. This stand also has scattered Sitka spruce in the overstory. The stand is composed of medium to large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 35% on a NW aspect. The western portion of the unit is bounded by a large class II V notch creek. Overstory age is 300 +/- years old with moderate defect and significant amounts of mistletoe, mechanical/animal damage, old defoliation leaving dead tops and windthrow. The understory is <20% stocked with 20 to 80 year old W. hemlock and Sitka spruce which occur in groups throughout with poor vigor. Ground cover is moderately dense *Vaccinium*, associated with devils club skunk cabbage, and shield fern. Scattered new windthrow found throughout. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Shovel logging unit. Buffer on west boundary. 600 feet of Temporary road needed.

**Visual Resource Management:** VQO Maximum modification. No concerns.

**Soils / Geology:** No concerns. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 2 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Suitable habitat for red-breasted sapsucker, marten, and black bear. Reserve trees and snags to maintain habitat diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of partially understocked stand, volume class 5 with diseased, mature overstory for program timber yield.
- (2) Retain minor amounts of green cull or high defect trees for vertical stand structure and cavity nesting habitat.
- (3) One end suspension.
- (4) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clear cut with reserves best meets objectives for the stand because: (1) Provides a high volume return from a stand that is passing its peak productivity. (2) Reserves individual trees to provide good phenotypes for vertical and cavity nesting habitat structure and visual softening of visual impacts. Reserves should be green culls or less common species such as Sitka spruce or yellow cedar, when found.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit is bounded by a bend in a Class I creek to the west and north. The balance of the unit to the east is bounded by generally low site lands.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Retain patches of advanced reproduction.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

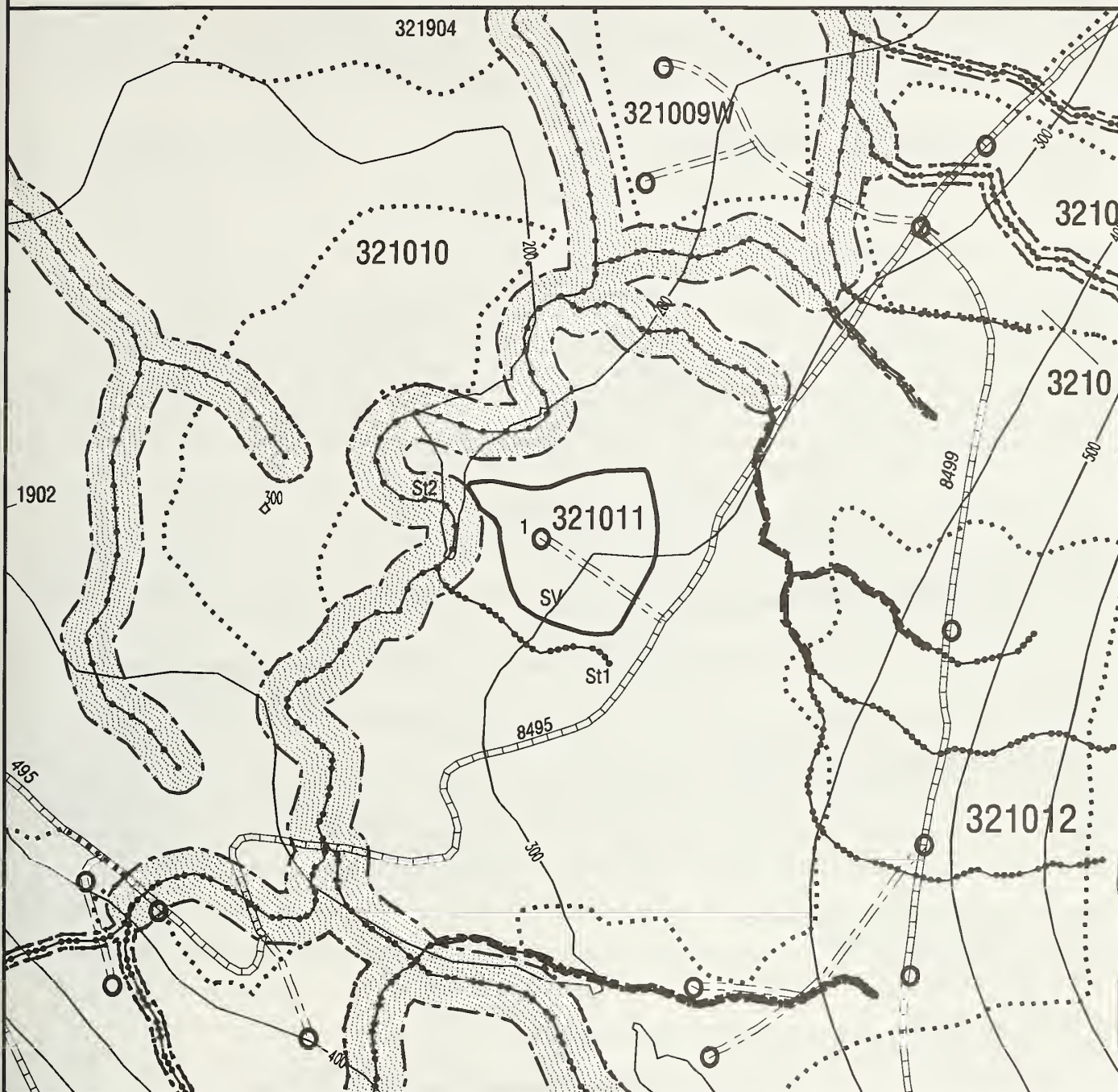


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 70 VCU: 82 UNIT: 321011 ALTERNATIVE(S): 2 4 7

ACRES: 8.99 TOTAL NET MBF: 214.8 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 24 ROLL NO.: 888 PRINT NO.: 196



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321012

MAP # 73

## STAND CHARACTERISTICS

Uneven age multiple storied stand in the W. hemlock series. This stand also has minor amounts of Sitka spruce, Y. cedar in the overstory. The stand is composed of medium size, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 50% on aspects from W to SW. The southwestern portion of the unit is bounded by a Class II buffer. Overstory ages are 150 to 275 years old with moderate defect and significant amounts of conk, mistletoe, mechanical/animal damage and some defoliators. The understory is 41-60% stocked with 20+ year old W. hemlock which occur in patches throughout with fair to good vigor except those infected with dwarf mistletoe. Ground cover is moderate to dense vaccinium associated with rusty menziesia ad skunk cabbage. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Running skyline in all settings. Directional falling away from V-notches. Unit is not suitable for partial cut. 1600 feet of temporary road required.

**Visual Resource Management:** VQO Maximum Modification. Viewed from middle ground of ferry route-7 miles.

**Soils / Geology:** No concerns listed. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 2, 3a and 4a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from the stream courses. Apply BMP 13.16 sec. 3b. (3) Streams 1, 4 and 5 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (4) Stream 6 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Stream 7 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Goshawk survey conducted. No response. Noted several species of songbirds. Moose tracks. Bear sign. Suitable habitat for red breasted sap sucker and black bear. Recommend leaving live trees and snags. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** Checked report of y. cedar CMT near NW corner of unit on 8/3/94. Found 2 CMT's outside of unit at 360 & 370 foot elevation. No CMT's observed in unit.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4 & 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings and rounding unit corners on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the south setting for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) One end suspension.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcut with reserves and Clearcut** was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserve some individual trees (green cull) on lower slopes below the road when feasible and scallop edges between settings especially on the upper slope that may be visible from Port Houghton. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls or less common species such as Sitka spruce or yellow cedar, when found. Scalloped edge between settings and rounded corners on the upper portion of the unit will retain about 3 to 4 acres of timber on the upper slopes of the unit above the road. Selection and shelterwood not feasible with logging system and not reasonable due to infestation of dwarf mistletoe. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Bounded by Class II stream to the southwest and muskeg/low site to west. Bounded by logical reserve settings adjacent to 321009 and 321199 to the north and south respectively. East boundary is adjacent to class 4 soils area.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

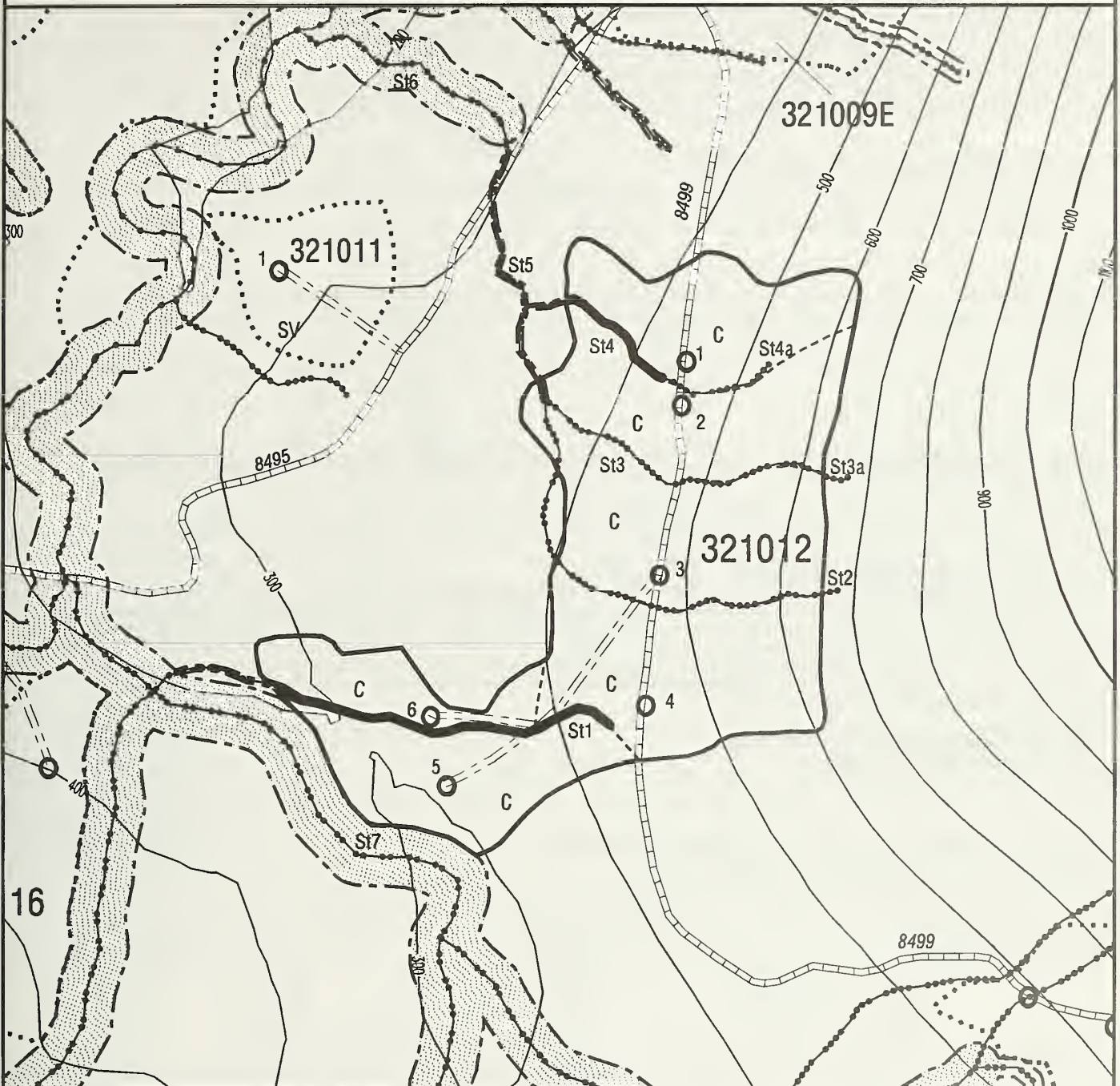


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 73 VCU: 82 UNIT: 321012 ALTERNATIVE(S): 2 4 7

ACRES: 70.98 TOTAL NET MBF: 1852.1 QUAD(S): SUMB5 QUARTER QUAD(S): SE

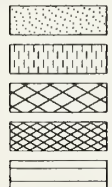
PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 116



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321013

MAP # 72

## STAND CHARACTERISTICS

Mosaic stand in the w. hemlock and w. hemlock/y. cedar series with a significant Sitka spruce component. A small low site area is included in the unit. The stand is composed of medium to large, moderate quality sawtimber with significant amounts of utility pulp. Slopes range from 10 to 55% with a few short pitches up to 90% on aspects from N to NW. Ground is broken with small sharp ridges and 2 small Class III creeks. The low site area is located in the northwest corner of the unit. Overstory ages are 280 to 320 years old with moderate to high defect and significant amounts of conk mechanical/animal damage, old defoliation leaving dead tops, and windthrow. The understory is <20% stocked with 20+ W. hemlock and Sitka spruce which occur in groups throughout with poor to fair vigor. Ground cover is sparse to dense vaccinium associated with skunk cabbage. Significant new windthrow found throughout. Site ranges from poor to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Unit boundaries conform to logical yarding limits. Not suitable for partial harvest. Retain understory and green cull for visual and wildlife mitigation. Snag retention is a safety issue. Helicopter to landing #1 in Unit 322034.

**Visual Resource Management:** VQO Maximum Modification. Viewed in the middleground from small boat route Viewed from the ferry in the background.

**Soils / Geology:** No concerns listed in the post field comments. BMP 12.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1, 2 and 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Wetland area within unit boundary, near stream #3. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** Habitat for Vancouver Canada goose, red breasted sap sucker, black bear. Use reserve trees and snags to maintain habitat structure. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4,5 & 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings and rounding unit corners on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the south line and low site area in west setting for vertical stand structure and cavity nesting habitat.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit, especially on the upper slope that may be visible from Port Houghton, will meet VQO. In addition, tall timber (up to 130 ft. in height) to the north of the unit will partially hide the harvest area from view. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is feasible with the logging system and reasonable due to infestation of dwarf mistletoe. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary is a topographic yarding limit.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

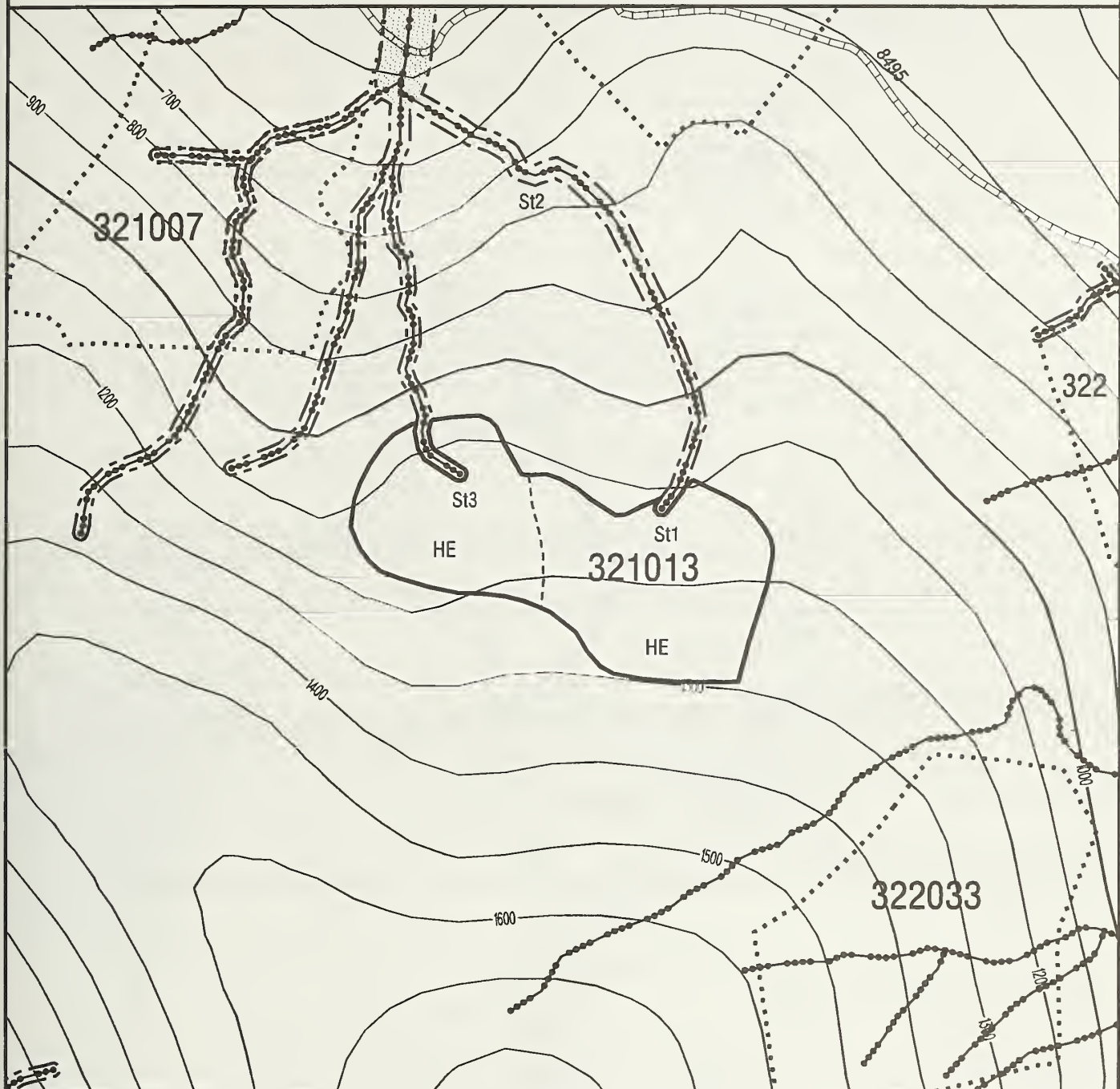
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 72 VCU: 82 UNIT: 321013 ALTERNATIVE(S): 2 4

ACRES: 25.91 TOTAL NET MBF: 490.2 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 125



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321016

MAP # 78

## STAND CHARACTERISTICS

Even aged functional stand in the volume class 5 and 6 stands which are in the w. hemlock series, and two storied in volume class 4 which is in the w. hemlock/y. cedar series. This stand also has significant amounts of Sitka spruce in the overstory. The stand is composed of small to large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 50% on aspects from N to NE which are bisected by a significant V-notch creek. The eastern portion of the unit is bounded by a large class II V-notch buffer. Overstory ages are 300 to 330 years old with moderate defect and significant amounts of conk, mistletoe, mechanical/animal damage, defoliators that have killed the tops of trees, and windthrow. The understory is 20-40% stocked with 20 to 60 year old W. hemlock in groups throughout with poor to fair vigor. Ground cover is sparse to dense vaccinium associated with rusty menziesia and skunk cabbage. Significant new windthrow found scattered throughout the unit. Site ranges from poor in the VC4 area to good over the balance of the unit.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Slackline and small slackline with 70 to 90 foot tower on four settings. Not suited for partial cut. Skyline extensions will be needed across Class II creek. Snag retention is a safety issue. 1500 feet if temporary road needed. Yarding will block mainline.

**Visual Resource Management:** VQO maximum modification.

**Soils / Geology:** No concerns listed. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1 and 2 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Streams 3 and 4 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Stream 5 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Use reserve trees and snags to maintain habitat. Suitable habitat for red breasted sap sucker, marten and black bear. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4,5 & 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings and rounding unit corners on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the south line and low site area in west setting for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) One end suspension.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves and Clearcut were selected as best meeting resource objectives because: (1) They provide a high volume return from a stand that is past its peak productivity. (2) They reserve some individual trees (green cull), specifically, on upper south slopes below the 8495 road and scallop edges between settings especially on the upper slope that may be visible from Port Houghton. (3) They provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts by reserving green culls, yellow cedar or Sitka spruce.

Shelterwood and group selection are not feasible with logging system and not reasonable due to infestation of dwarf mistletoe.

Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

East and northeast bounded by a Class II V-notch buffer. North line partially bounded by road 8495 and a muskeg/ low site area. Western boundary is generally defined by road 8495 and logical yarding limits.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Retain patches of vigorous reproduction when found.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

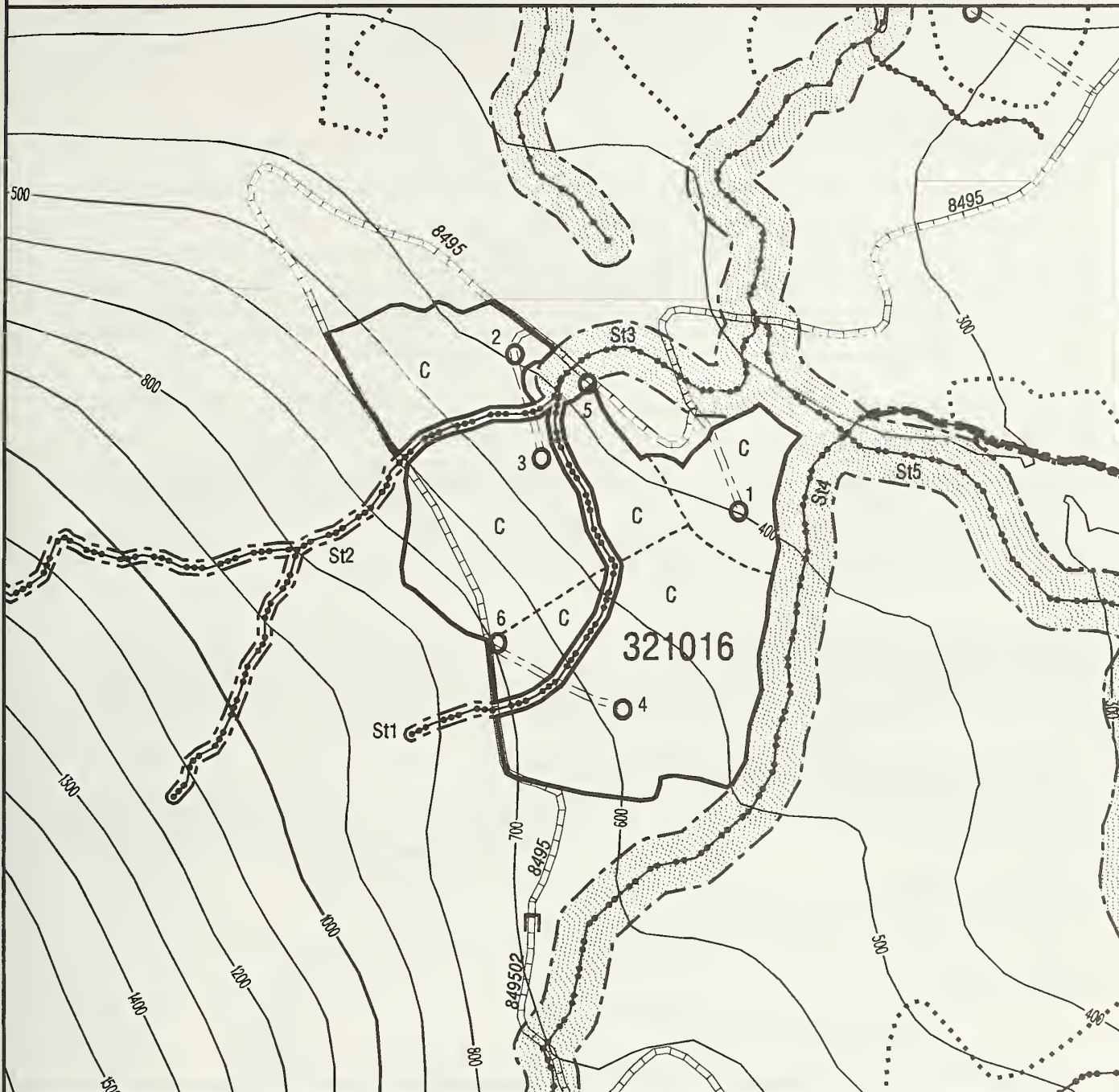


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 78 VCU: 82 UNIT: 321016 ALTERNATIVE(S): 2 4 7

ACRES: 52.02 TOTAL NET MBF: 1197.5 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 47 ROLL NO.: 684 PRINT NO.: 106



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPIARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321017

MAP #: 88

## STAND CHARACTERISTICS

Uneven aged stand in the w. hemlock and w. hemlock/y. cedar series. This stand also has significant amounts of Sitka spruce in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 90% on aspects from W to SW which are bisected by a significant Class III V-notch creek. Overstory ages are 300 to 400 years old with high defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage, and minor windthrow. The understory is <20% stocked with 30 to 60 year old W. hemlock and Sitka spruce which occur in groups throughout with poor to fair vigor. A large area of more even and dense reproduction to the west was deleted from the unit during layout. Ground cover is moderate to dense vaccinium associated with devils club and skunk cabbage. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Running Skyline for all settings. Directional falling away from V-notches is required. Unit modified due to limited deflection, stream buffers and low site area.

**Visual Resource Management:** VQO Maximum Modification. Viewed in midground from ferry route. Unit is tucked behind the topography minimizing impacts.

**Soils / Geology:** Locate east boundary below hazard soils. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams A, B, C, E, J and I - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanup required. Apply BMP 13.16 sec. 3c. (2) Stream D, FU, FM, G (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Streams F, H and K (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Survey for n. goshawk- no response. Survey for marbled murrelet- high density. Recommend leaving green culls and snags for habitat. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4,5 & 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and watershed concerns by retention between settings at high gradient creeks.
- (4) Retain minor amounts of green cull or high defect trees by feathering edges against the west line low site area for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves and Clearcut were selected because: (1) They provide a high volume return from a stand that is past its peak productivity. (2) They reserve individual trees (green cull) on lower west slopes below the 8499 road and along the steep gradient creeks below the road when feasible. (3) They provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Shelterwood and group selection are not reasonable due to infestation of dwarf mistletoe. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

**Description of Unit Boundary Determination:**

West line is bounded by Class II and III buffers and low site area. Southern boundary is a Class II and III creek. North and east boundaries are determined by logging feasibility and mapped hazard class 4 soils.

**Forest Productivity Activities:**

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

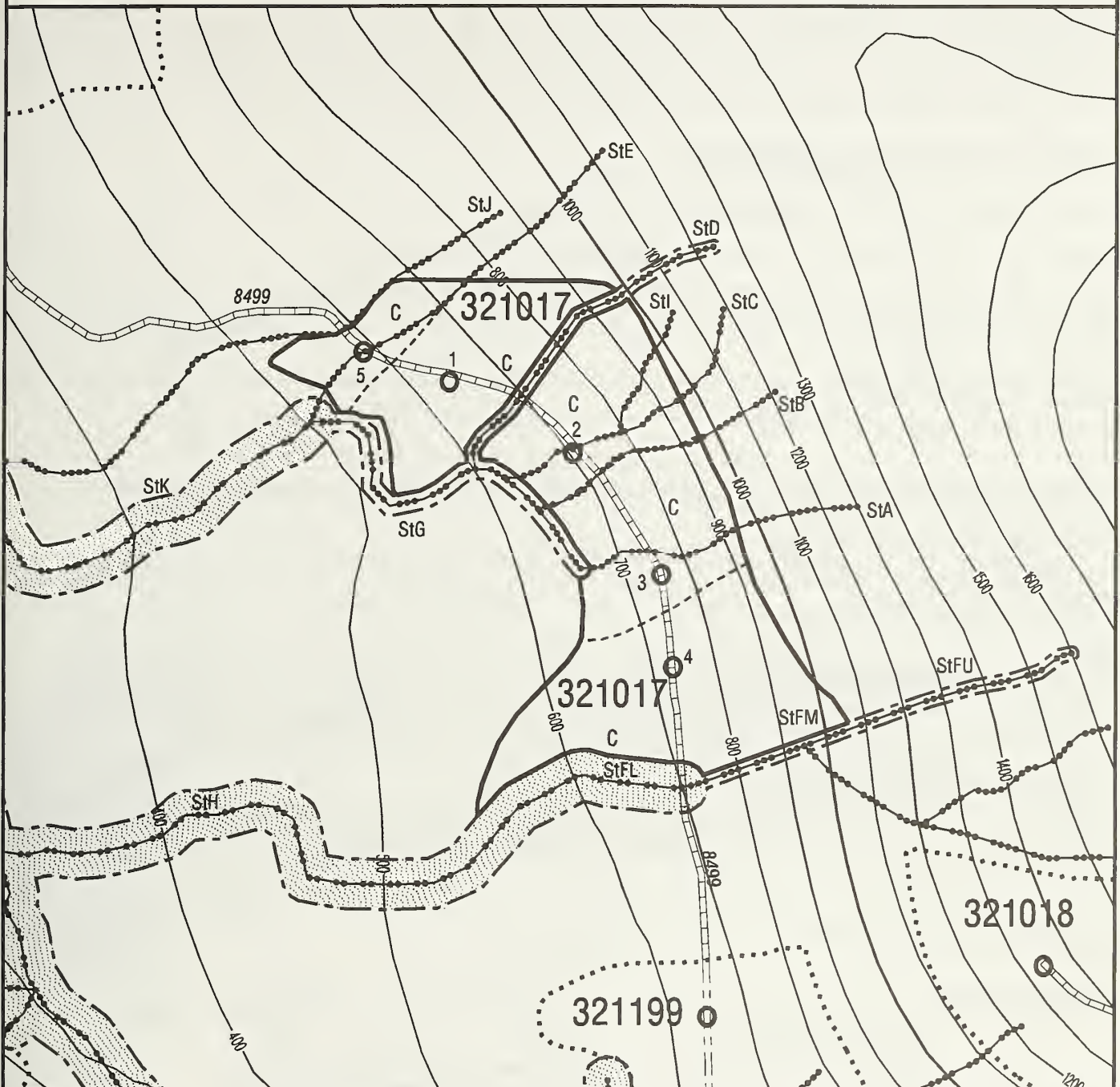
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 88 VCU: 82 UNIT: 321017 ALTERNATIVE(S): 2 4 7

ACRES: 49.8 TOTAL NET MBF: 1407.4 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 115



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321018

MAP # 104

## STAND CHARACTERISTICS

Upper elevation stand of medium to large sawtimber in the western hemlock and western hemlock-yellow cedar series. Defect and mortality are low to average. Stand structure is 2-storied in VC6 and functionally even-aged in VC 5 (borderline 4/5, called 4 on TIMTYP layer). Overstory age is over 350 yrs in VC 6 and 180 to 220 in VC 4/5 with scattered predominants over 350 yrs. The southwest aspect is gentle near the ridgeline rolling off to moderately to very steep with one Class 3 v-notch stream. Slope instability is evident in the stand. Soils are moderately well drained. Understory is relatively open, primarily blueberry with shield fern and devil's club in VC 6 and blueberry in VC 4/5. Advanced conifer reproduction is sparse in VC 4/5 but a 60 to 80 ft tall understory occupies over 60% of growing space in VC 6. Regeneration potential and potential productivity are high. Mistletoe is present but not abundant. Windthrow and slope instability are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Gravity Return, Skyline. (2) Heavy partial harvest feasible. (3) Tailtrees required. (4) Skyline extensions required beyond unit boundaries.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC Intermediate. (2)

**Soils / Geology:** Middle slope is greater than 70% and instability is evident. Unstable areas deleted. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Streams 2, 3, 4, 6 and 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Streams 1, 1a and 5 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec 3b.

**Wildlife:** (1) Suspected northern goshawk seen near unit. (2) red tailed hawk in unit. (3) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of a overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Exclude Hazard Class 4 soils from the commercial timber base.
- (6) Provide a programmed timber yield.
- (7) Minimize sediment yield to fish bearing stream.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative because is best provides for retained habitat structure, visual mitigation, and regeneration of yellow cedar. Clearcut and clearcut with reserves would not provide as much habitat, visual quality, and ecological/soil function. Group selection was considered for the VC 6 to remove the overstory and leave the younger cohort; however, much of this stand condition was dropped for reasons of slope stability and the rx would require helicopter harvest. Defer treatment would not provide a timber yield and would not regenerate a stand with low current and moderate to high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The south boundary buffers a large and unstable Class III v-notch stream. The east boundary follows the transition to low productivity forest near the ridge. The north boundary is a logical setting boundary with a leave strip between 321018 and 321017. A north-south strip of unstable slope >75% was deleted from 321018 as originally planned and the lower portion renumbered as 321199 and treated as a separate unit. The west boundary of 321018 is now the break into the oversteepened and potentially unstable midslope area.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Schedule PCT and favor SS and YC.

## MONITORING PLAN

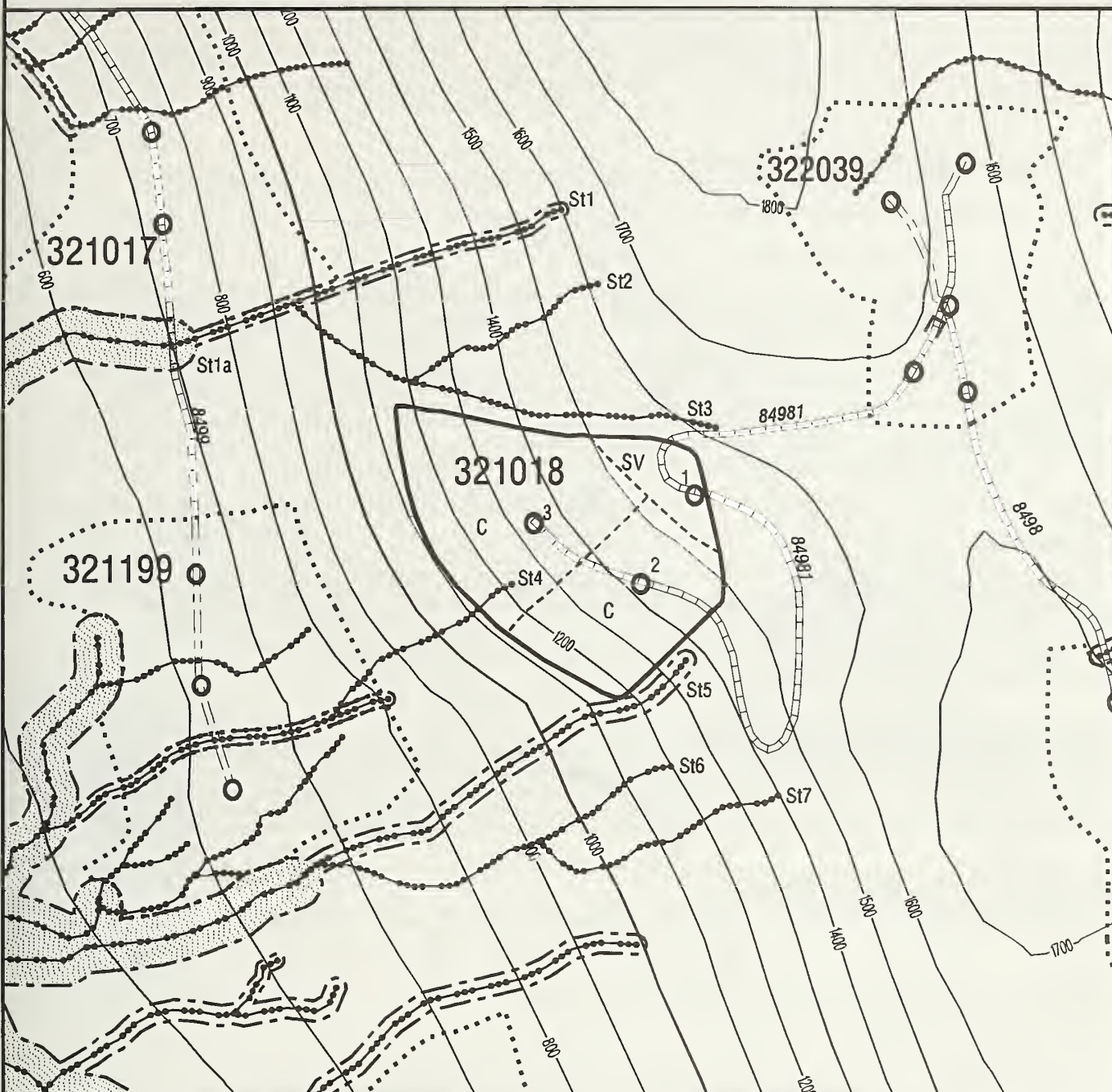
Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy.& reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if>700 tpa, VC5+,resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 104 VCU: 82 UNIT: 321018 ALTERNATIVE(S): 2 4 5

ACRES: 25.92 TOTAL NET MBF: 561.3 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 127



EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED TEMP ROAD  
 UNIT BOUNDARY  
 ADJACENT UNIT  
 SETTING BOUNDARY  
 CONTOUR LINE  
 OWNERSHIP BOUNDARY  
 RIPARIAN MGMT AREA  
 CLASS 1 STREAM  
 CLASS 2 STREAM  
 CLASS 3 STREAM  
 CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
 SV = SHOVEL  
 C = CABLE  
 St1 STREAM ID IN NARRATIVE  
 ROAD BEGINS  
 LANDING & NUMBER  
 EAGLE TREE

STREAM TTRA BUFFER  
 BEACH/ESTUARY BUFFER  
 SEAWATER  
 LAKE  
 LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321019

MAP # 95

## STAND CHARACTERISTICS

Even aged functional and unevenage stand in volume class 4, 5 & 6 in the w. hemlock and w. hemlock/y. cedar series. This stand also has significant amounts Sitka spruce in the overstory. The stand is composed of medium to large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 10 to 50% on a NE aspect. The eastern portion of the unit is bounded by a class II stream buffer. Overstory ages are 265+/- years old with moderate defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage, old defoliation resulting in snag tops, and scattered windthrow. The understory is <20% stocked with 20 to 50 year old W. hemlock in which occur in groups, throughout with poor to fair vigor. Ground cover is moderate to dense vaccinium associated with rusty menziesia, skunk cabbage and minor amounts of devils club. Significant new windthrow found throughout the unit. Site is moderate to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Slackline cable system. Suitable for heavy partial cut. Skyline rigged through buffer. Snag retention is a safety hazard.

**Visual Resource Management:** VQO Maximum Modification. Viewed from middle ground of ferry route.

**Soils / Geology:** No concerns listed. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1, 2, 3 and 4 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 3a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Streams 2a and 4a (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (4) Streams 1a, 2b, 3b and 4b (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Stream 5 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Surveyed for marbled murrelets. Recommend leaving live reserve trees and snags to maintain habitat structure. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4,5& 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings, shelterwood and rounding unit corners on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the west line for vertical stand structure and cavity nesting habitat.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) Provides a high volume return from a stand that is past its peak productivity.(2) Reserve individual trees (green cull) uniformly; scallop edges between settings on the upper slope that may be visible from Port Houghton. Systems provides good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls, y. cedar or less common Sitka spruce when found. Also during final layout round edges of unit for visual mitigation. Clearcut and clearcut with reserves would not mitigate wildlife and visual concerns. Group selection would be operationally infeasible in this terrain. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

East boundary is a Class II stream buffer. West boundary is the 849502 road. North and south boundaries the extent of logical logging systems.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Seed V-notch area with Sitka alder.
- (4) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

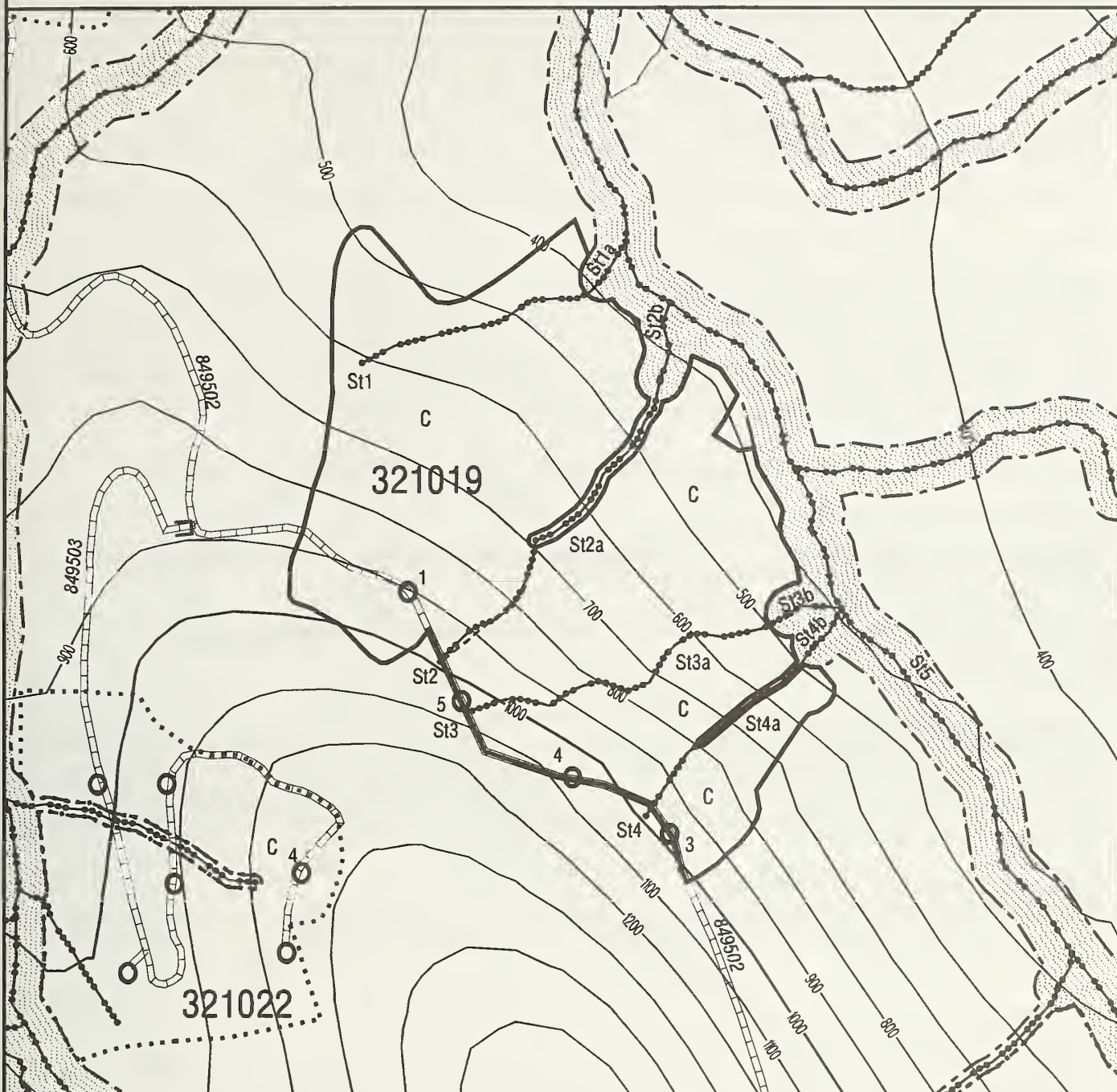
Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy.& reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if>700 tpa, VC5+,resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 95 VCU: 82 UNIT: 321019 ALTERNATIVE(S): 2 4

ACRES: 82.3 TOTAL NET MBF: 1789.5 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 115



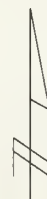
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321022

MAP #: 109

## STAND CHARACTERISTICS

Upper elevation stand of medium sawtimber in the western hemlock and western hemlock-yellow cedar series. Average to high defect and mortality as about 70% of overstory trees are defective. Stand structure is a mosaic of 2-storied and uneven. Overstory age is over 300 years and understory is over 100 years. The predominantly west aspect stand has moderately steep to steep slopes. Soils drainage is moderately poor. Understory is blueberry with scattered skunk cabbage. Advanced conifer regeneration averages 25% understory cover and is mostly western hemlock in fair to good condition. Regeneration potential is high and potential productivity is moderate. Management concerns are adjacency with other units and visual impact.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Small slackline. (2) Tail trees and guyline extensions or multiple tiebacks required. (3) Heavy partial harvest feasible but snag retention is a safety hazard.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: Low. (2) Middle ground view from ferry and visual priority travel route. (3) Highest visual sensitivity.

**Soils / Geology:** Unit excludes Hazard Class 4 soils. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Stream 4 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 3 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** (1) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of middleground visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Reduce sediment yield to fish bearing streams.
- (6) Maintain diversity of commercial timber species.
- (7) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system and not reasonable due to infestation of dwarf mistletoe. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit was reconfigured from the original proposal due to road access feasibility and adjacency problems with unit 321023. Two thirds of the unit was dropped and three small settings were added to the northwest. The north and northeast boundary follows a logical setting boundary on a ridgetop leaving a future unit between 321022 and 321019. West boundary is Class II buffer.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging and blowdown of leave trees.
- (2) Schedule PVT and favor SS and YC.

## MONITORING PLAN

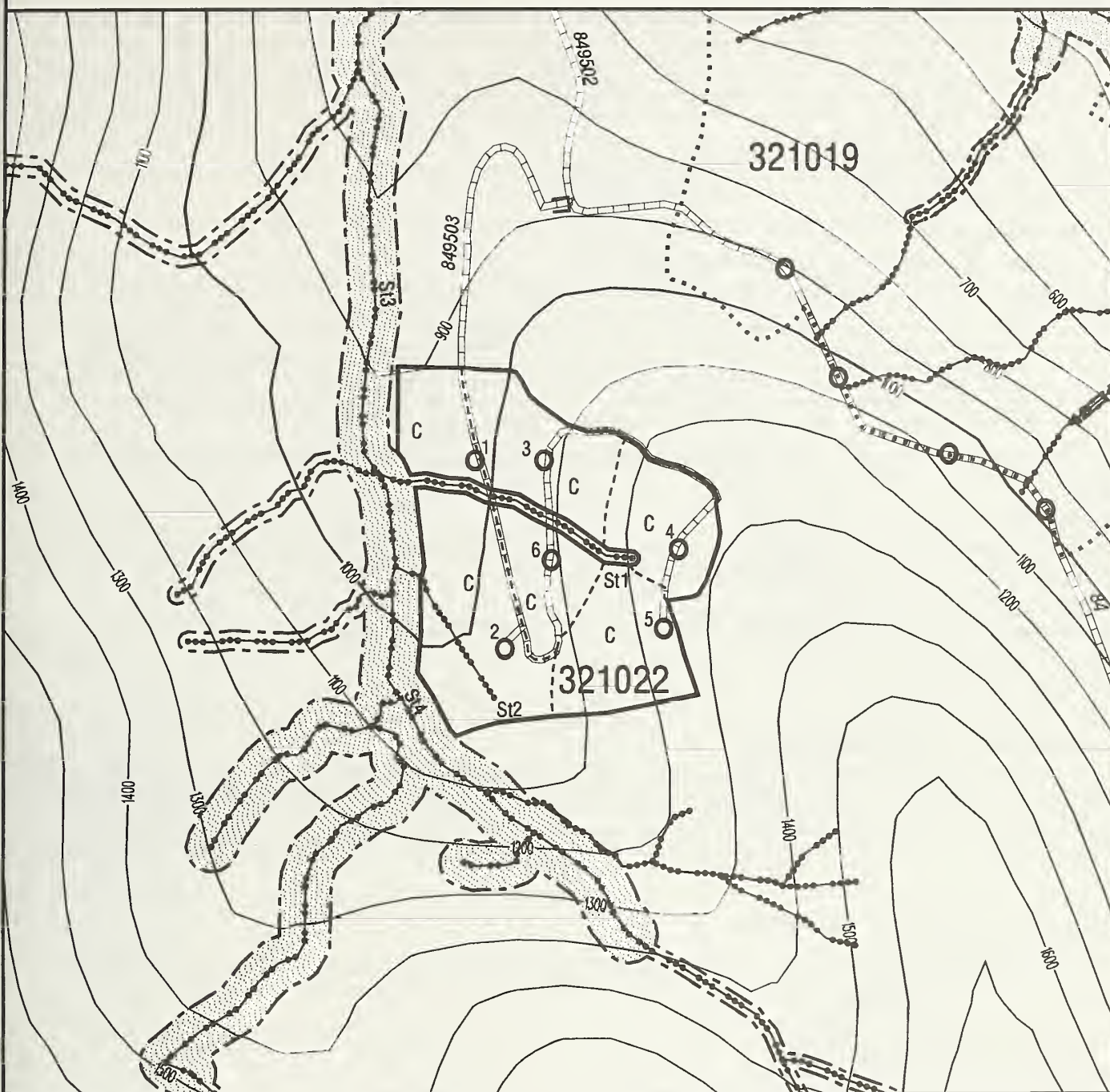
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 109 VCU: 82 UNIT: 321022 ALTERNATIVE(S): 2 4

ACRES: 34.09 TOTAL NET MBF: 696.1 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 24 ROLL NO.: 888 PRINT NO.: 194



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321023

MAP # 115

Note: Alt. B is helicopter logging. Alt. C is conventional logging.

## STAND CHARACTERISTICS

Mid to upper elevation stand of large sawtimber that is 60% VC 6 western hemlock series with a dominant spruce component; 40% VC 5 western hemlock-yellow cedar series with scattered spruce; and a VC 4 mixed conifer series fringe bordering the muskeg at the bottom of the stand. Defect and mortality is low to moderate in VC 5 and average to high in VC6. Stand structure is functionally even-aged with overstory age over 350 years. The northeast aspect is moderately steep to steep with two Class 3 drainages. Soils are moderately poor to moderately well drained. Understory averages 40% blueberry cover, with devils club in draws in VC6 and skunk cabbage common in VC 6. Advanced conifer reproduction is sparse, with some groups of fair to poor WH reproduction in canopy gaps created by windthrow. Regeneration potential is high except for moderate in VC 5 where skunk cabbage is abundant. Potential productivity is moderate to high. Cedar decline is evident in the muskeg fringe along the bottom of the stand. Visuals impact is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft slackline with 1 3/8 inch skyline. (2) Tail trees and skyline extension into stream buffer required. (3) Heavy partial harvest feasible below road but snag retention is a safety hazard. (4) Side blocking required. BMP 13.9 applicable.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: Low. (2) Viewed in middleground from visual priority travel route and ferry route.

**Soils / Geology:** Low productivity soils were excluded from timber harvest.

**Fisheries / Watershed:** (1) Streams 1, 2 and 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Streams 4a, 5 and 6 (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 7 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No harvest within the Riparian Management Area, defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Survey for marbled murrelet indicated a high density. (2) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of middle ground visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Maintain diversity of commercial timber species.
- (7) Provide a programmed timber yield.
- (8) Skyline yarding with one end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system and not reasonable due to infestation of dwarf mistletoe. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand. Helicopter logging would eliminate road construction.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

From the northeast corner the east boundary is a Class II buffer (upgraded during field review) and a low productivity forest buffer to the muskeg and stream where it downgrades to Class IV. The south boundary buffers low productivity forest land. The southwest and north boundaries are feasible logging setting boundaries. There is a future unit to the north between 321023 and 321019.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Schedule PCT and favor SS and YC.

## MONITORING PLAN

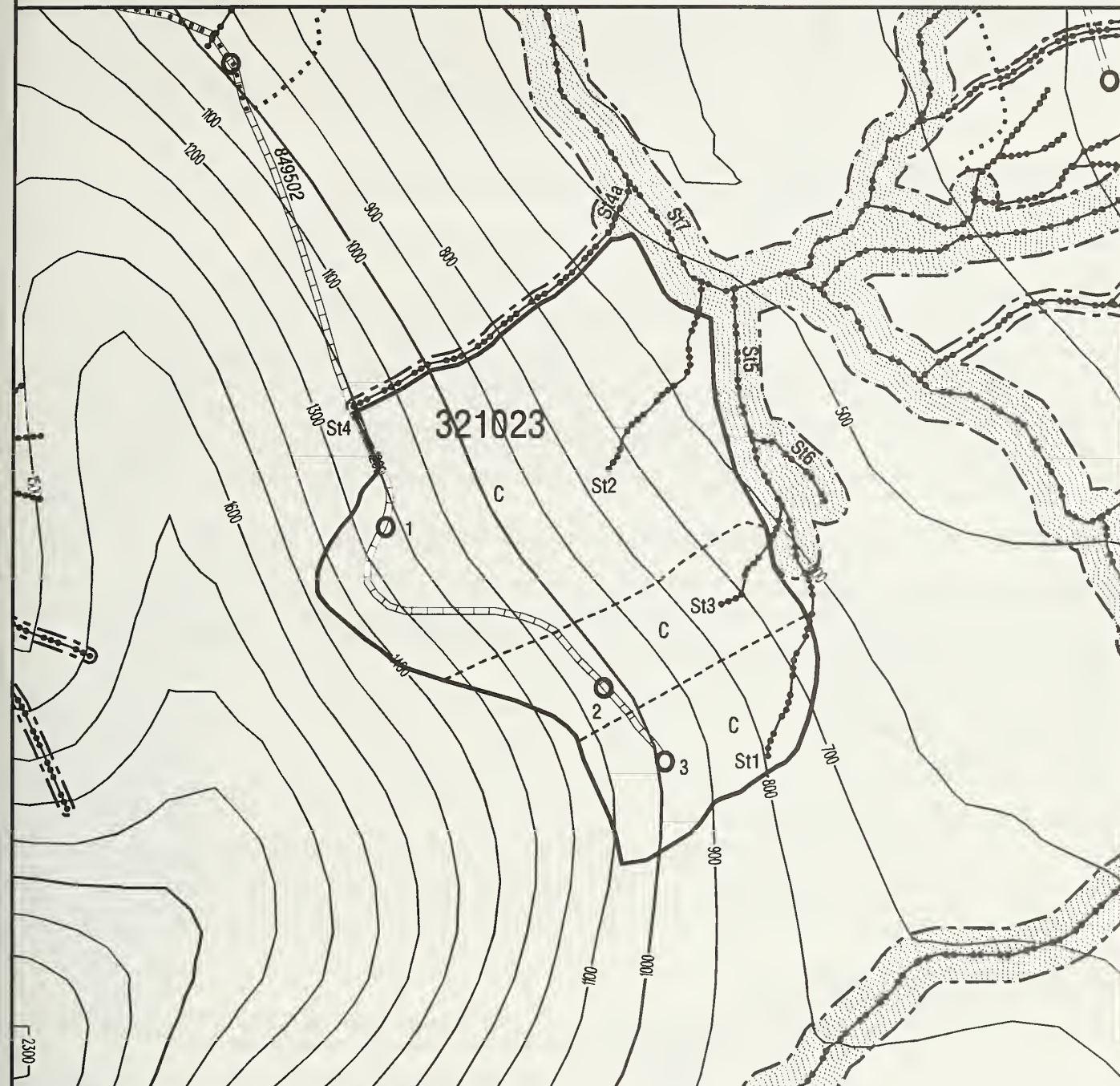
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 115 VCU: 82 UNIT: 321023 ALTERNATIVE(S): 2 4

ACRES: 72.81 TOTAL NET MBF: 1900.5 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 114



EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED TEMP ROAD  
 UNIT BOUNDARY  
 ADJACENT UNIT  
 SETTING BOUNDARY  
 CONTOUR LINE  
 OWNERSHIP BOUNDARY  
 RIPARIAN MGMT AREA  
 CLASS 1 STREAM  
 CLASS 2 STREAM  
 CLASS 3 STREAM  
 CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○<sup>1</sup> LANDING & NUMBER

★ EAGLE TREE

STREAM TTRA BUFFER  
 BEACH/ESTUARY BUFFER  
 SEAWATER  
 LAKE  
 LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321024

MAP # 128

## STAND CHARACTERISTICS

Mid to upper elevation stand, 90% spruce and W. hemlock-yellow cedar series in VC5 and 10% mixed conifer series in VC4, with a very small inclusion of VC6. VC4 has low-site inclusions. Sawtimber is medium in size with low defect and mortality. Stand structure is a mosaic of uneven-aged and 2-storied with overstory age 300+ years in VC5 and 250+ years in VC4. Some mature conifer understory is of suitable quality for crop tree retention. Slopes are moderately steep to very steep with several small to moderate class 3 drainages and v-notches. Soil drainage in VC5 is moderately poor to moderate, and poor throughout VC4. Approximately 12-14 acres have been identified within the unit as "special treatment" slope hazard areas- steep slopes with evidence of instability ; these slopes are operable with silvicultural limitations. Understory cover is fairly dense in VC5, blueberry and devils club, and open in VC4 with blueberry, skunk cabbage, and deer cabbage indicating areas of low productivity. Conifer understory averages 20% pole cover and 40% advanced reproduction. Regeneration potential is low to moderate and potential productivity is fair to moderate. Mistletoe is present but not abundant. Slope stability and visual impact are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Slackline proposed. (2) Heavy partial harvest feasible but snag retention is a safety hazard. (3) Complex guyline anchors or rock bolts required. (4) tail trees and skyline extensions in stream buffers required. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High. (2) Viewed in background from small boat and ferry route.

**Soils / Geology:** (1) Area of potential soil instability in northeast of stand. This area was avoided. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 1a and 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Stream 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (4) Stream 4 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Stream 5 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (6) Stream 6 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No harvest within the Riparian Management Area, defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Recommend green tree and snag retention for vertical habitat structure and other wildlife habitat values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and mature understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Reduce sediment yield to fish bearing streams.
- (6) Maintain diversity of commercial timber species.
- (7) Provide a programmed timber yield.
- (8) Skyline yarding with one end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system and not reasonable due to infestation of dwarf mistletoe. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary excludes low-site and muskeg areas and buffers the Class II by 400 ft. The south boundary follows the transition into low-site and muskeg areas. The boundary in the northwest corner and the west boundary are logical logging setting boundaries adjacent to future units. North boundary buffers Class III.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and blowdown of retention trees.
- (2) Timber value and volume productivity enhanced by planting SS and YC.
- (3) Schedule PCT and favor SS and YC.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

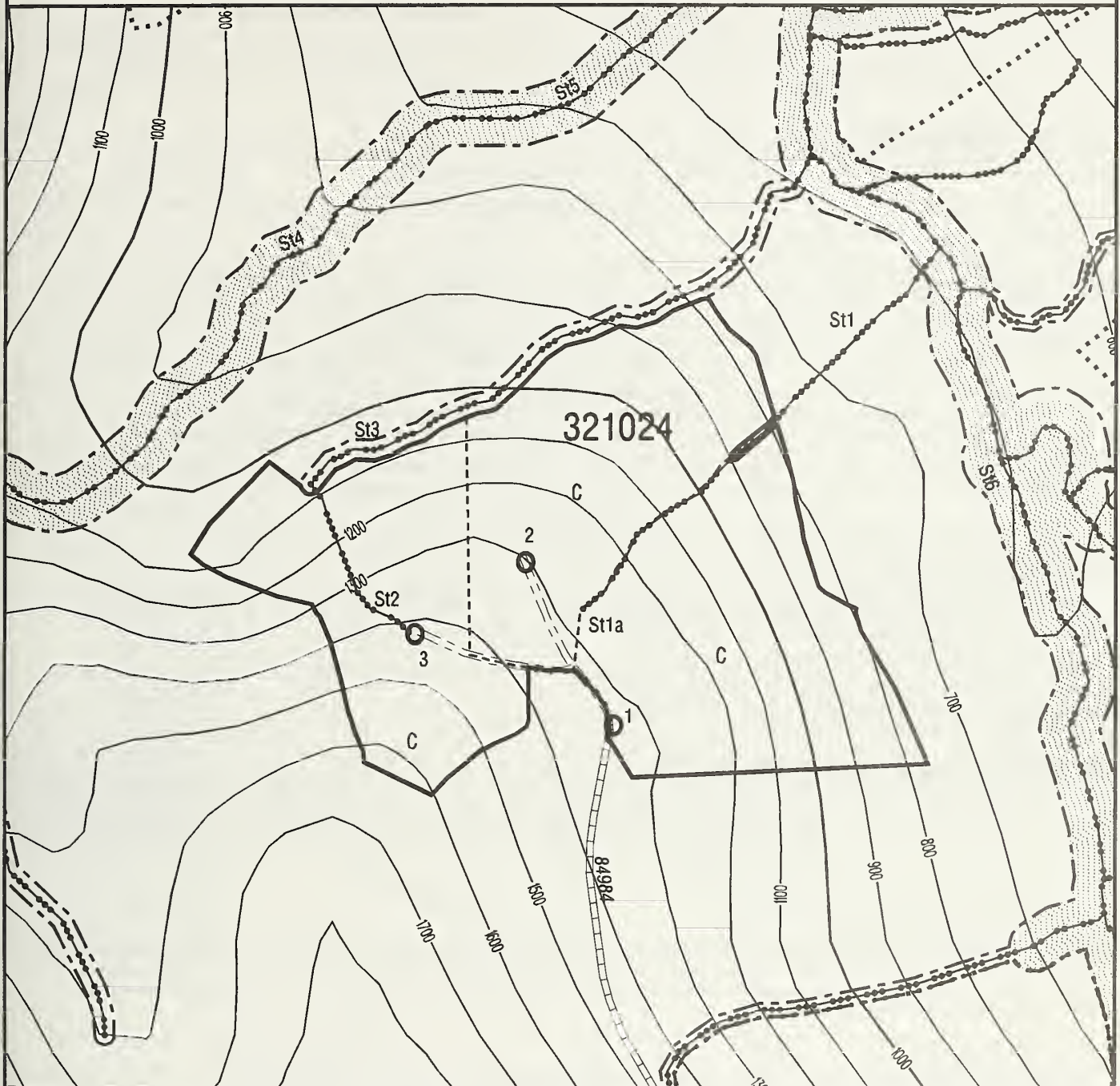


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 128 VCU: 82 UNIT: 321024 ALTERNATIVE(S): 2 4 5 7

ACRES: 80.49 TOTAL NET MBF: 1628.7 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 113



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321025

MAP #: 121

Note. Alts. C and E do not include helicopter portion of unit.

## STAND CHARACTERISTICS

Mild to upper elevation stand, 88% W. hemlock series in VC6 and 12% W. hemlock and W. hemlock-yellow cedar series in VC 4 & 5. Sawtimber in VC6 is large with high-average defect and low mortality, medium sized in VC 4&5 with low-average defect and higher mortality. Stand structure is a mosaic of uneven-aged and 2-storied, with overstory age 200+ years. West-facing slopes are moderately steep; soils range from moderately well to poorly drained by plant association. The downslope west extension of the unit was made into a helicopter selection setting to mitigate mass wasting hazard on very steep slopes. Understory is blueberry with some devils club and rusty menziesia, and skunk cabbage in VC4. Advanced conifer reproduction is all WH, occurring in occasional patches with up to 40% cover. Regeneration potential and potential productivity are high.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Combination of slackline and running skyline with some shovel logging. (2) Partial harvest is feasible but snags safety hazard.. (3) Lower setting is large slackline or helicopter. (4) Suitable for heavy partial cut. (5) Tailhold required outside of unit. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: Intermediate. (2) Background view from ferry route. (3) Low visual sensitivity.

**Soils / Geology:** Lower slopes are Soil hazard Class 3. BMP 13.5.

**Fisheries / Watershed:** (1) Streams 3, 4, 5, 6 and 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Streams 1, 2, 8, 11, 12 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 8a (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 8b (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Stream 9 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (6) Stream 10 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** (1) Recommend green tree retention for vertical habitat structure and other wildlife values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Modify management on Hazard Class III soils to reduce mass movement risk
- (6) Minimize sediment yield to fish bearing streams.
- (7) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the recommended Rx for the cable portions of the stand because a heavy partial harvest is feasible, wildlife habitat structure could be retained, and visual impact reduced with a marginal loss in timber yield and harvest economics. Clearcut and clearcut with reserves would not retain habitat structure nor lessen visual impact to the same degree. Group selection is the recommended Rx for the helicopter setting to reduce mass movement risk by retention of tree cover and avoiding areas of greatest risk. Individual tree selection or sanitation salvage would not provide as favorable conditions for regeneration and would be more difficult operationally. Defer would not regenerate a overmature stand with high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The north and east unit boundaries were located bordering hazard Class 4 soils on slopes and low-site volume stands along the ridge, which passes through the eastern arm of the unit. The western downhill extent of the unit was moved upslope to avoid v-notch stream courses in proximity of the buffered Class II stream. The south boundary is a predesignated logging setting boundary that borders a stand of younger, thrifty timber, while the south boundary of the western unit arm as the proposed cable setting boundary prior to designation as a helicopter setting.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and blowdown of leave trees.
- (2) Schedule PCT and favor YC and SS.
- (3) Plant SS.

## MONITORING PLAN

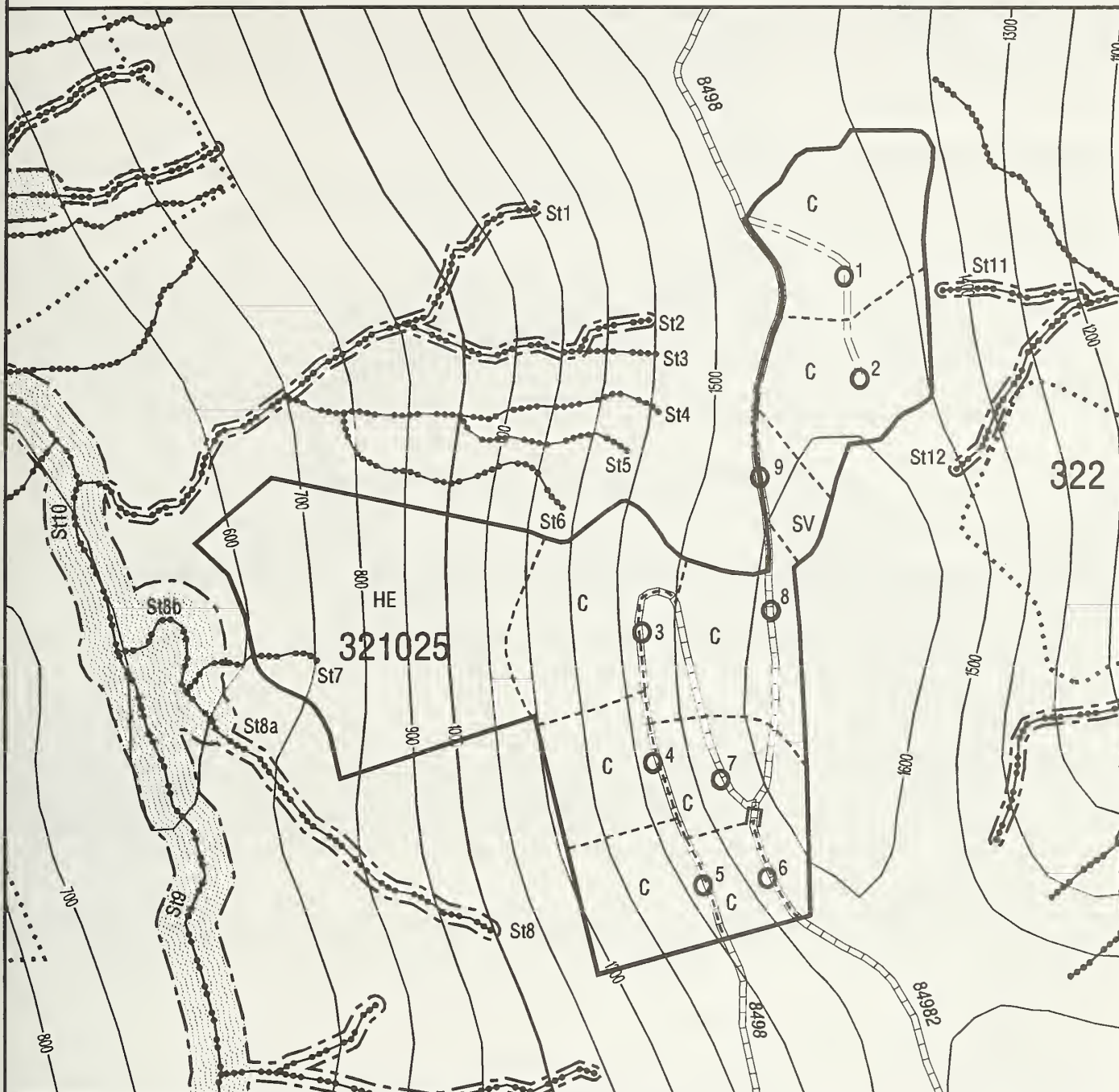
Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if>700 tpa, VC5+,resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 121 VCU: 82 UNIT: 321025 ALTERNATIVE(S): 2 4 5 7 SETTING HE EXCLUDED IN ALT. 7

MAXIMUM ACRES: 92.77 TOTAL NET MBF: 2368.5 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 128



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

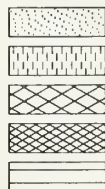
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

1 LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321026

MAP # 141

## STAND CHARACTERISTICS

Mid to upper elevation stand of Mt. hemlock and W. hemlock-yellow cedar series in volume classes 4, 5, and 6, differentiated primarily by productivity associated with soil drainage classes. Sawtimber is medium to large, with defect and mortality ranging from very low to average by volume class. Stand structure is a mosaic of uneven-aged and 2-storied with overstory age exceeding 350-400 years. Northeast-facing slopes are moderately steep to very steep and benchy midslopes. Soils are mostly moderately well drained (in VC6, majority of unit area), grading to somewhat poorly drained in VC4. Understory throughout the unit is a mosaic of open areas, some dense blueberry, some dense regeneration, mostly low brush cover with well stocked healthy regeneration. Advanced mixed species regeneration, healthy and relatively vigorous, is present in approx. 70% of unit area; regeneration potential is moderate. Slope stability in the middle 1/3 of unit may be a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Skyline yarding. (2) Tail trees required. (3) Heavy partial harvest feasible but snag retention is a safety hazard. (4) Rig through stream buffer. (5) Require 9 station temporary road, including 6 stations of 16% adverse grade - should be built after NW setting is logged. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: Intermediate. (2) Background view from ferry route. (3) Low visual sensitivity.

**Soils / Geology:** (1) Areas of potentially unstable soil at midslope. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 2 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (3) Stream 1a and 2a (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 3 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** (1) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Conserve advanced regeneration where feasible.
- (6) Minimize sediment yield to fish bearing streams.
- (7) Provide a programmed timber yield.
- (8) Skyline yarding with one end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative because a heavy partial cut is feasible and there is heavy defect in the overstory and an understory that is relatively abundant and in fair to good condition. Clearcut and clearcut with reserves would provide a slightly higher yield at lower cost but would cause more damage to the understory and provide less habitat structure retention and visual mitigation. A compromise is that hemlock regeneration will predominate as the degree of disturbance will not be as favorable for YC and SS. The Rx will be more successful if the unit is yarded by helicopter. Group selection is not feasible without helicopter harvest and would not provide as high a yield nor subsequent productivity. Sanitation salvage is not an economic alternative. Defer would not regenerate a unit with moderate productivity and would not release acceptable understory trees or advanced regeneration.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary at the lower extent of the unit follows a Class II stream buffer. The north boundary borders a Class III V-notch stream which becomes a Class II tributary on the lower slope. The main access road serves as the western unit boundary. The south unit boundary is a feasible logging setting boundary, also located to retain a timbered buffer between units 321026 and 321028.

### Forest Productivity Activities:

Soil mixing from logging disturbance and blowdown of reserve trees.  
Schedule PCT and favor YC and SS.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

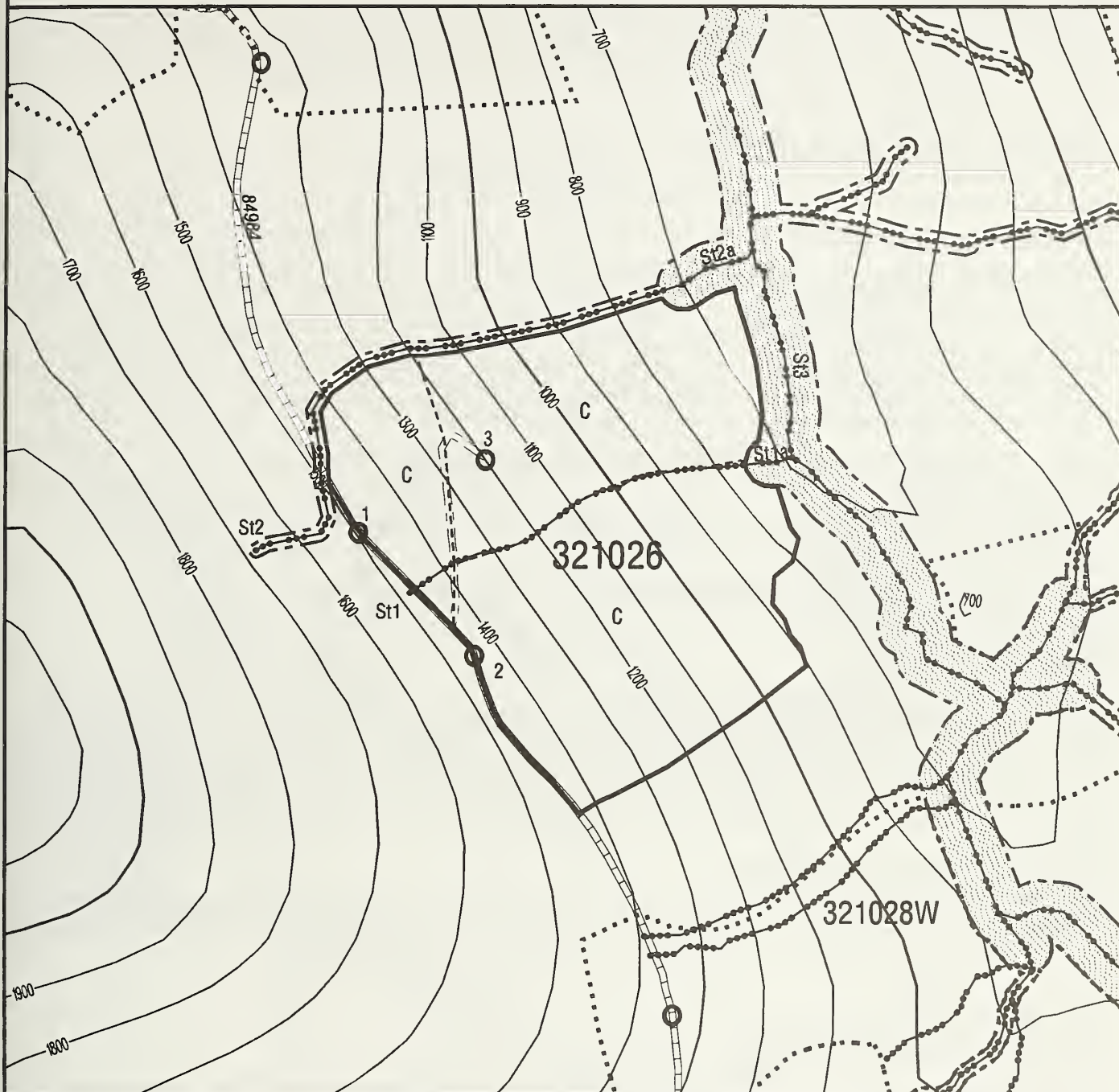


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 141 VCU: 82 UNIT: 321026 ALTERNATIVE(S): 2 4 5 7

ACRES: 65.95 TOTAL NET MBF: 1719.3 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 129



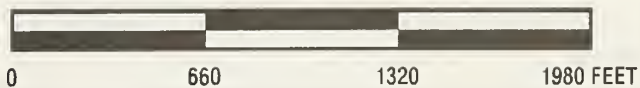
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321027

MAP # 140

## STAND CHARACTERISTICS

Mid to upper elevation stand of medium to large sawtimber in a mosaic of western hemlock, Sitka spruce, mixed conifer, and western hemlock-yellow cedar series. Defect and mortality is average. Much of the defect is from frost cracking in large trees and dead tops. Stand structure is functionally even aged with scattered snags 8-12 per acre. Overstory age is 260-320 years. The southwest aspect averages 40-50% on middle and upper slopes, and is gentler on the more productive lower slopes. Class III drainages are present including a moderate size v-notch in the lower central portion of the unit. Soil drainage is moderate to moderately poor. Understory is blueberry with a complement of skunk cabbage, devils club, and shield fern. Advanced conifer reproduction is sparse. Regeneration potential is moderate to high. Windthrow is a management concern, especially on mid and upper slopes.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Gravity return. (2) Heavy partial harvest feasible but snag retention is a safety hazard. (3) 200 ft temp road required to access landing. (4) Tail trees and skyline extensions across the Class II stream are required. Three helicopter settings west of unit.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: High. (2) Viewed in background from oblique angle. Visual impact is low sensitivity.

**Soils / Geology:** BMPs 12.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 2, 4 and 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Streams 1, 1a, 2a, 3 and 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Streams 1b and 6a (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break of 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 7 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Wetland area within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** (1) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of commercial timber species.
- (6) Minimize sediment yield to fish bearing streams
- (7) Provide a programmed timber yield.
- (8) Skyline yarding with partial suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves, the selected alternative, best meets overall resource objectives for several reasons: (1) Ecological function: Blowdown will perpetuate pit and mound topography and potentially maintain or improve site productivity in portions of the stand. (2) Harvest efficiency: Almost all of the available volume will be logged. (3) Visual quality: Reserve trees will mitigate the effects of harvest as seen from Port Houghton. (4) Wildlife habitat: Vertical structure will provide habitat for several species and species groups. Other alternatives: Clearcut would not meet visual quality and wildlife objectives. Shelterwood with reserves would not harvest as much timber, and would be marginally better in mitigating visual quality and providing habitat. Group selection was considered but not selected because it would require costly helicopter harvest and the likelihood of subsequent blowdown reduces the probability of net increment. Defer treatment would not regenerate this stand, which is decadent timber with moderate to high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary borders a low-site fringe and muskeg along the upper ridge. Part of the northeast setting as originally planned was deleted to logically conform to a topographic feature found in the field, and the southeast setting was enlarged. The north- and south-western unit boundaries are logical logging setting boundaries abutting future entries. Unit 321029 was modified to maintain a wide wildlife corridor between the two units. The west boundary is a Class II stream buffer.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and blowdown of retention trees.
- (2) Plant SS and YC to improved volume and value growth.
- (3) Schedule PCT and favor SS and YC.

## MONITORING PLAN

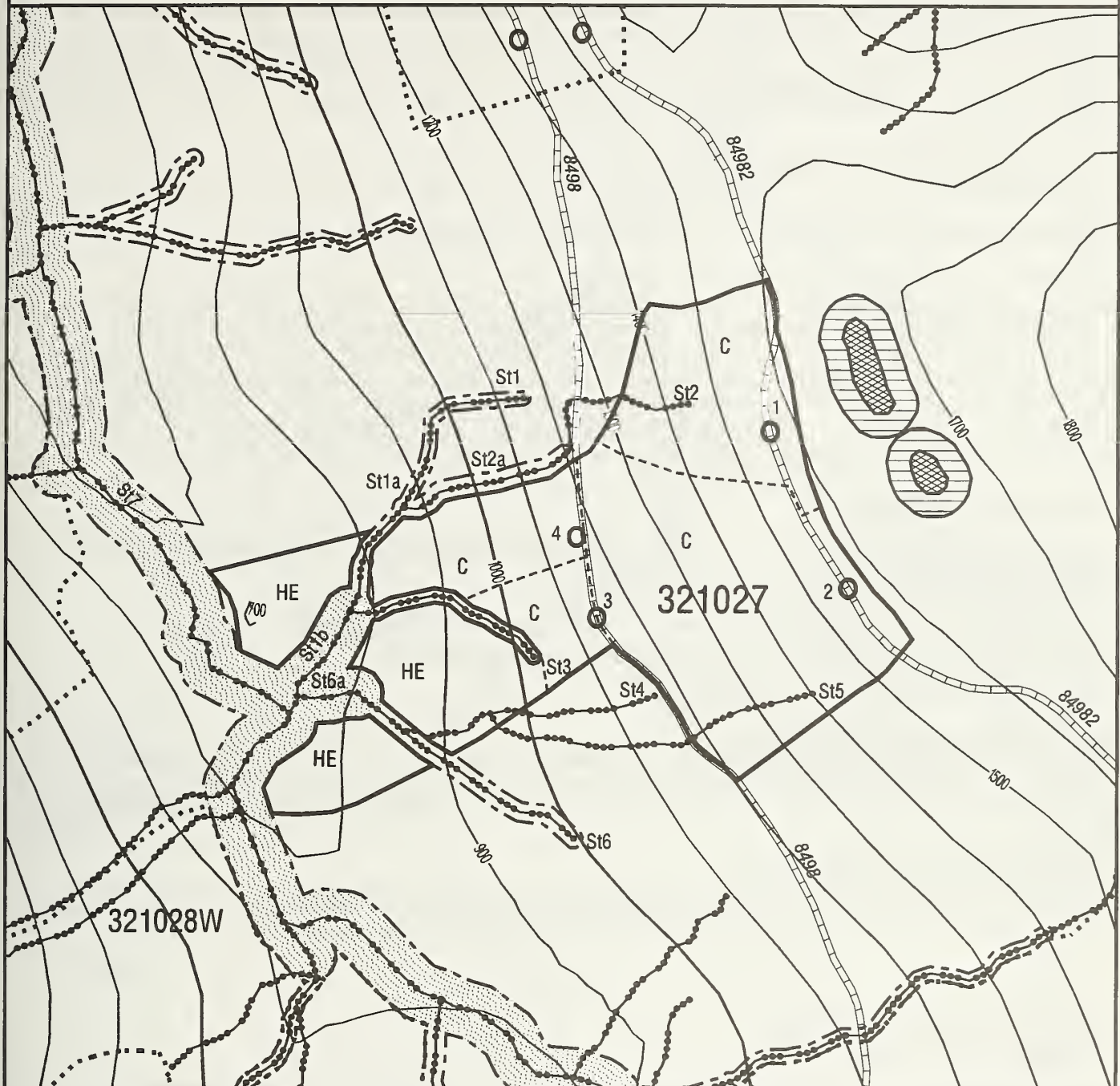
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 140 VCU: 82 UNIT: 321027 ALTERNATIVE(S): 2 4 5 7 SETTINGS HE EXCLUDED IN ALT. 7

MAXIMUM ACRES: 64.99 TOTAL NET MBF: 1770.7 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 129



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321028

MAP # 147

## STAND CHARACTERISTICS

Mid to upper elevation stand, 65% mixed conifer series in VC4 and 35% w. hemlock and w. hemlock-yellow cedar series in VC 5 & 6. Sawtimber in VC4 is medium size with high defect and very low mortality, also medium in VC 5&6 with low-average defect and mortality. Stand structure is functionally even-aged with overstory age 200+ years. Slopes are moderately steep with a few small v-notch creeks and one large v-notch stream in the central draw between east and west sections bordered by unstable sideslopes. Soils are poorly drained in VC4, moderately poorly drained in VC 5&6. Understory is blueberry with skunk cabbage abundant in VC4 and skunk cabbage + devils club in VC 5&6. Advanced conifer regeneration occupies 15-40% understory cover in VC4 with good form MH and WH, and 10-15% cover of variable quality WH in VC 5&6; regeneration potential is low in VC4 and moderate in VC 5&6. Regen potential in VC4 and the large v-notch stream are management concerns in this unit. Small meadow between 2 sections of unit.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Large slackline. (2) Partial harvest not feasible. (3) Tail trees in Class II buffer may be required. 1400 feet of temporary road needed to access setting #2.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: Intermediate. (2) Low visual sensitivity as most of unit is not seen.

**Soils / Geology:** Low productivity forest soils. BMP 12.5 applicable.

**Fisheries / Watershed:** (1) Streams 1 and 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Streams 2, 3, 4, 5 and 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Streams 6a and 8 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 1a (MM) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b and BMP 13.9. (5) Wetland area associated with stream 4. Apply BMP 12.5 and Executive Order 11990.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Minimize sediment yield to fish bearing streams.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Maintain diversity of commercial timber species.
- (6) Design alternative silviculture Rx's to provide side by side demonstrations of adaptive management trials.
- (7) Exclude low productivity forest soils from the commercial timber base.
- (8) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because partial harvest feasibility is poor. Harvest economics, regeneration, and timber yield are maximized by the clearcut. Group selection and sanitation salvage were considered but costs would be high as helicopter harvest of defective and lower quality timber would be necessary. The poor condition of the understory and advanced reproduction indicate against partial harvest. Defer treatment would not regenerate an overmature stand with fair potential productivity nor provide a timber yield.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The south-central portion unit boundary follows the transition to large low-site volume forest and excludes an area included in the original unit proposal. The northwest boundary buffers a Class IV stream and leaves a future entry between 321028 and 321026. The northeast boundary is a TTRA Class II stream buffer. All other boundaries are the transition into low site/volume forest and muskeg fringe. The wetland area associated with stream #4 has been removed from the unit.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance.
- (2) Plant YC and SS to improve value and volume yield.
- (3) Schedule PCT and favor SS and YC.

## MONITORING PLAN

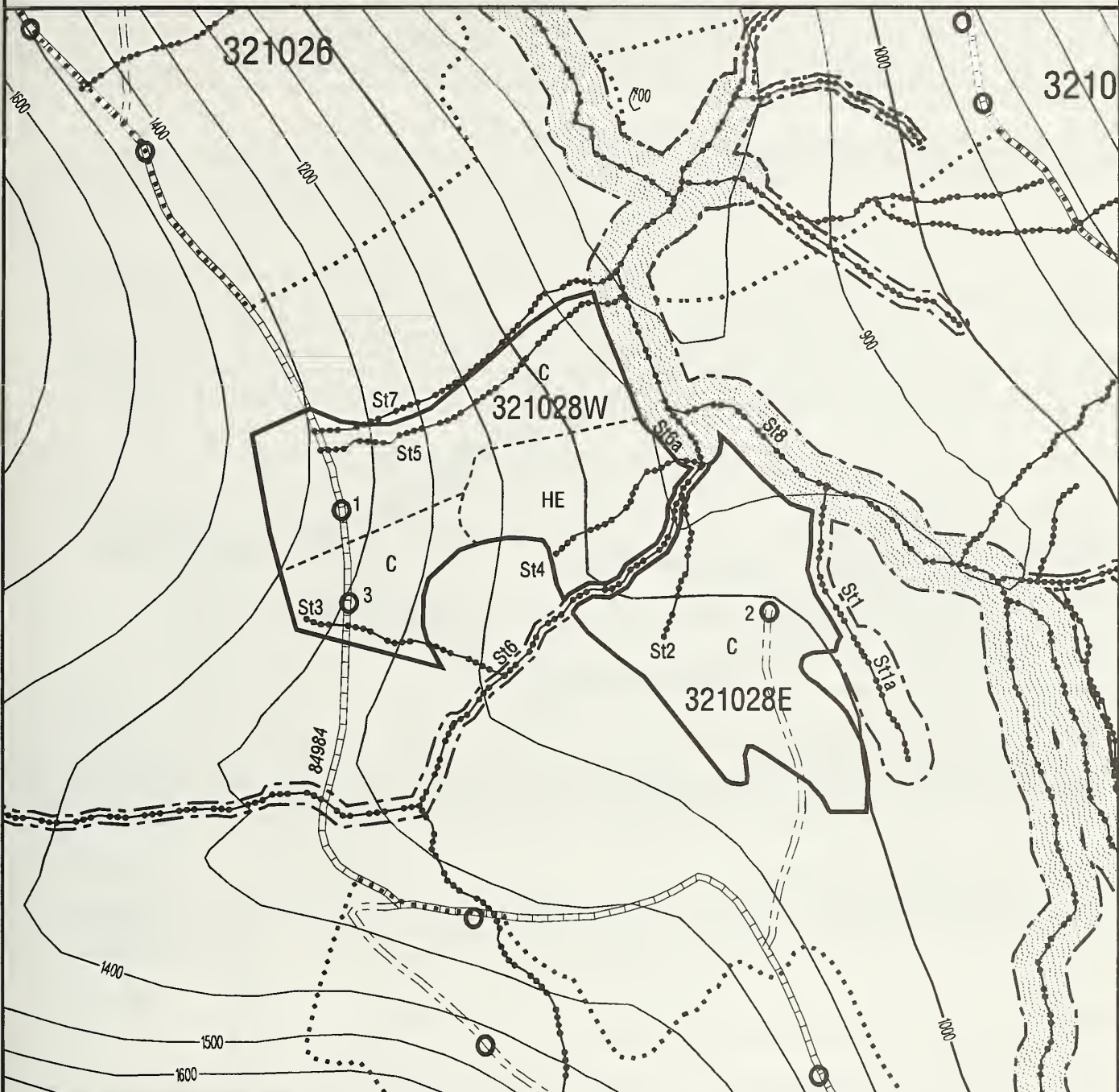
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 147 VCU: 82 UNIT: 321028 ALTERNATIVE(S): 2 4 5 7

ACRES: 44.04 TOTAL NET MBF: 849.6 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 130



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPIARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321029

MAP # 148

## STAND CHARACTERISTICS

Upper elevation stand of medium to large sawtimber. Upper slope is VC 6 with western hemlock series with significant spruce component and western hemlock-yellow cedar series in VC 6 and VC 4 and VC 5 western hemlock-yellow-cedar series on the gentler lower slopes. Defect is average to high and current mortality is low. Stand structure is functionally even-aged with overstory age 300-350 years. Aspect is southwest. Upper slopes are 60-70% gradient, midslopes 30-50%, and lower slopes 10-35%. Soils are moderately well drained, somewhat poorly drained, and somewhat poorly to poorly drained respectively based upon position on slope. Understory is open on upper slopes; lower slopes have blueberry with abundant skunk cabbage. Advanced conifer regeneration is sparse. Regeneration potential is high to moderate. Potential productivity is moderate to high.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft large slackline, 70 ft small slackline and running skyline settings in stand. (2) Partial harvest is of poor feasibility. (3) 560 ft of temporary road required. (4) Multiple stump anchors, tail trees, and skyline extension through a Class II buffer required. (5) Directional cutting along buffer.

**Visual Resource Management:** (1) VQO: Maximum Modification, VAC: Intermediate. (2) Unit oblique to view from ferry route, no visual concerns.

**Soils / Geology:** BMP 12.5 applicable.

**Fisheries / Watershed** (1) Streams 1a, 1b and 5a (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 5b - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Streams 2a, 4, 6 and 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (4) Stream 2, 2b, 8 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Streams 2 and 4 - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** (1) No response to N goshawk survey. (2) Marbled murrelet survey results low density. (3) Heavily used travel corridor in saddle west of stand. (4) Recommend green tree and snag retention for vertical habitat structure and other wildlife values. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Maintain wildlife travel corridor.
- (7) Maintain commercial species diversity.
- (8) Design alternative silviculture Rx to provide operational demonstrations of adaptive management trials.
- (9) Provide a programmed timber yield.
- (10) Skyline with one end suspension.
- (11) Minimize tail trees, anchors, and extensions within Class II buffers.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut and clearcut with reserves is the selected alternative because logging feasibility is poor for a partial harvest and clearcut maximizes yield, harvest economic, and subsequent regeneration and productivity. Group selection was considered but would require costly helicopter harvest. Blowdown risk would be significant and regeneration success poorer by group selection and the probability of net increment questionable. Defer treatment would not regenerate an overmature stand with moderate to high potential productivity nor provide a timber yield.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The north and south settings are logical setting boundaries and class III buffers leaving wildlife travel corridors/future units between 321029 and units 321027 and 26102. 321029 was redesigned from the original proposal by dropping setting s to the north and south on the lower slope and extending the unit upslope to include an additional two settings. The west boundary is a TTRA Class II stream buffer. The east boundary is above the upper road and follows the transition to low site/volume forest along the upper ridge.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbance and blowdown of reserve trees.
- (2) Planting YC and SS.
- (3) Schedule PCT and favor SS and YC.

## MONITORING PLAN

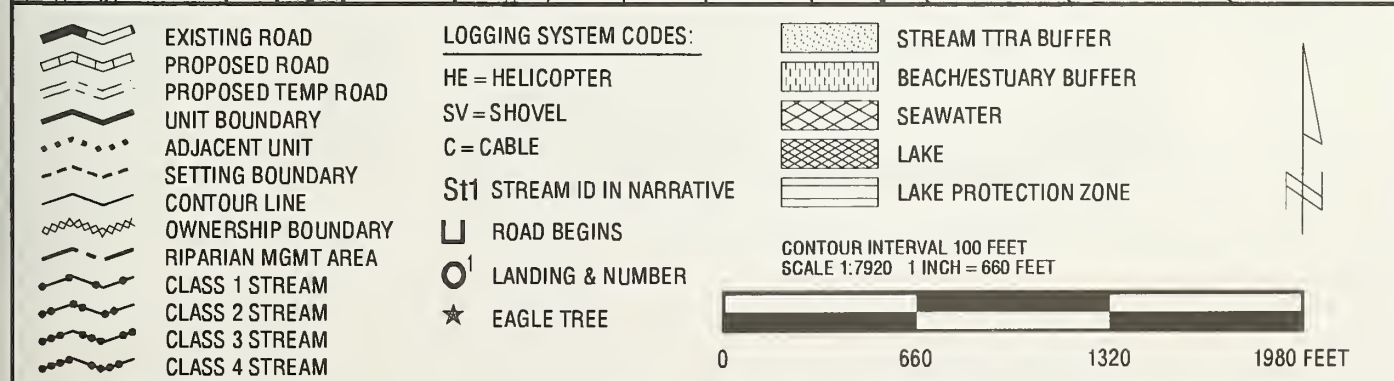
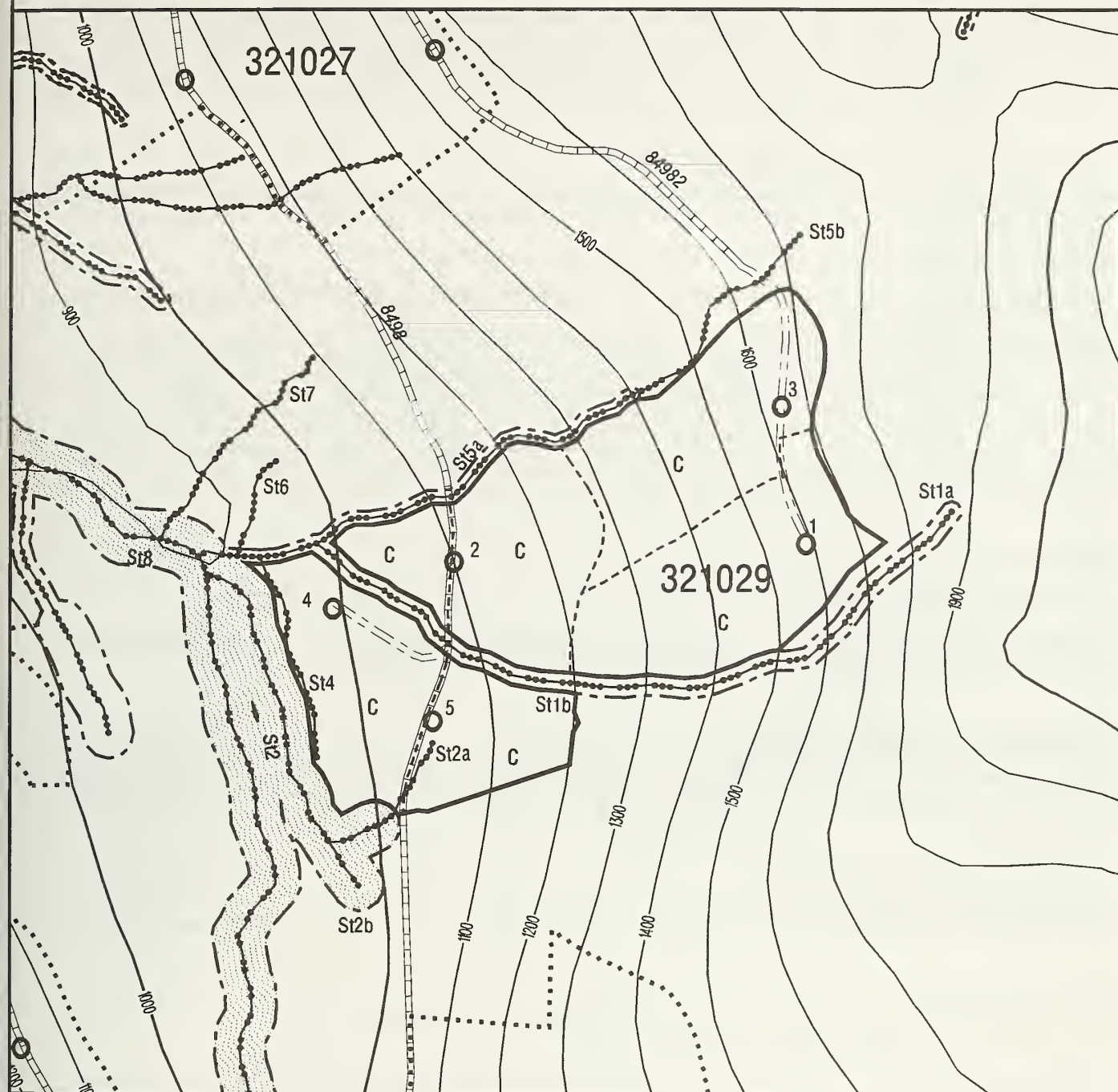
Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 148 VCU: 82 UNIT: 321029 ALTERNATIVE(S): 2 4 5 7

ACRES: 60.05 TOTAL NET MBF: 1678.6 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 178





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321030

MAP # 157

## STAND CHARACTERISTICS

Generally mosaic of two storied stands in the W. hemlock/Y. cedar, mixed conifer and Sitka spruce series. The unit is composed of medium to large, moderate quality sawtimber with moderate amounts of utility pulp. Slopes range from 10 to 70% with steeper pitches up to 110%. Aspects range from NW to N which are bisected by a number of small creeks. This unit is adjacent to flat muskeg areas to the east, as well as steep hazard class 4 soils to the west. Overstory ages are 200 to 320 years old with moderate defect and significant amounts of conk, mistletoe, mechanical/animal damage and windthrow. The understorey is typically <20% stocked with 20 to 40+ year old W. hemlock and Sitka spruce which occur in groups throughout with poor to good vigor. Ground cover is moderate to dense vaccinium associated with skunk cabbage and devils club. Site is fair to good over the unit as a whole. Sensitive soils areas avoided during unit layout.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Boundary along NW section slightly modified avoids hazard class 4 soils. Snag retention not advisable due to safety. Tail trees available. Temp. Spur Road for 10 stations to landing 6 easy construction. Temp road to landing # 1 is 23 stations. Poss. rock pit at sta. 17+50 Rd. Helicopter setting in south of unit.

**Visual Resource Management:** VQO: Maximum Modification Unit tucked into topography. Probably not seen.

**Soils / Geology:** Upper part of proposed unit was class 4 soil (paper plan). Observed from air on 8/11/94. The area of concern has been eliminated from the unit during actual layout-unit is now OK. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Streams 1, 2 and 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Stream 6 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 7 (MC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as within the side-slope break. Apply unit specific windfirm zone or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (5) Stream 5 (PA) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 100 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Survey for marbled murrelets- low density.

**Cultural / Recreation / Subsistence:** No Concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4 and better with diseased, mature overstory to a vigorous young stand.
- (2) Provide for programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcut** best meets the management objectives because: The system provides a high volume return from a stand that is past its peak productivity. There are no sensitive streams in or adjacent to the unit. that require additional protection. Substantial retention of green trees would result in windthrow which may be detrimental on sensitive soils within the unit. The unit is probably not seen in the viewshed. Shelterwood and group selection are not operationally feasible due to terrain and vegetation limitations, and not desirable with dwarf mistletoe infection and trees of poor crown structure. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The western unit boundary is adjacent to hazard class 4 soils. The northern and eastern boundaries are adjacent to muskeg/low site areas. The southern boundary forms a logical setting limit.

### Forest Productivity Activities:

- (1) During precommercial thinning favor Sitka spruce and yellow cedar also treat regeneration for dwarf mistletoe as needed.
- (2) Disturb soils in non sensitive areas for site preparation during harvest.

## MONITORING PLAN

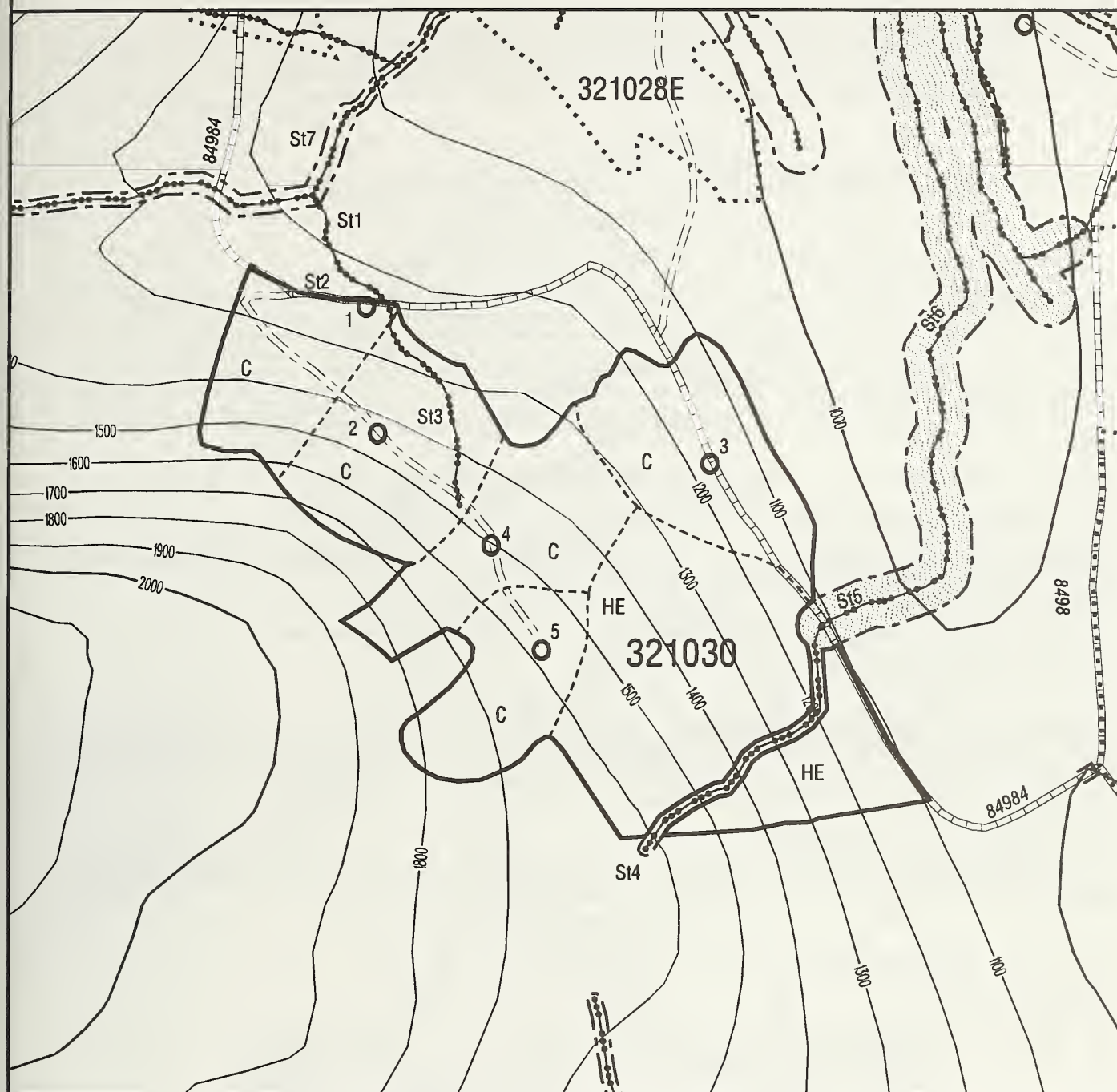
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 157 VCU: 82 UNIT: 321030 ALTERNATIVE(S): 2 4 5 7 SETTINGS HE EXCLUDED IN ALT. 7

MAXIMUM ACRES: 87.8 TOTAL NET MBF: 1261 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 131



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321197

MAP # 116

## STAND CHARACTERISTICS

Mid elevation stand of w. hemlock series, 95% VC6 and 5% VC5, composed of large sawtimber with low-average defect and high-average mortality. Stand structure is a mosaic of uneven-aged and 2-storied with overstory age 300+ years. Mature conifer understory and pole stock is fairly common and relatively free of bole defect, but mostly has sparse, small crowns. Slopes are moderately steep to very steep, with extremely steep side slopes of riparian channels prone to instability. Soils are somewhat poorly drained, to moderately well on micro sites. Understory is blueberry with abundant skunk cabbage throughout and shield fern on drier microsites. Advanced conifer regeneration of good form is sparse. Regeneration potential is moderate. Potential productivity is high. Windthrow, mistletoe, unstable stream channels, and visuals are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Helicopter harvest only. (2) Light partial harvest feasible. Use landing in Unit 321199. BMP 13.9 applicable.

**Visual Resource Management:** VQO: Maximum Modification; VAC: Intermediate. (2) Low visual sensitivity.

**Soils / Geology:** Unit originally had Hazard Class 3 and 4 soils. Class 4 soils eliminated from unit. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Streams A, B, C, E, F and J (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Streams D, G, H and H1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Streams C1 and F1 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream I (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** (1) Recommend retention of green trees and snags for vertical habitat structure and other wildlife values.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an over mature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Exclude Hazard Class 4 soils from the timber base.
- (7) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Group selection is the selected alternative because it provides a feasible and low impact method to manage a stand with high value timber and high potential productivity where access and management options are limited because of watershed risks. Even-aged methods are not indicated because of the numerous Class III channels in the stand and associated risks to fisheries from watershed impact. Sanitation salvage would not be as economic and would not provide as favorable conditions for regeneration and growth. Defer treatment would not provide a timber yield.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit is surrounded to the north, south, and east by soil hazard class 4 slopes; the north boundary buffers a large Class III V-notch stream. The west boundary adjoins a Class II stream buffer at the valley bottom, with two Class II tributary buffers extending into the western unit interior.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance and blowdown of leave trees.

## MONITORING PLAN

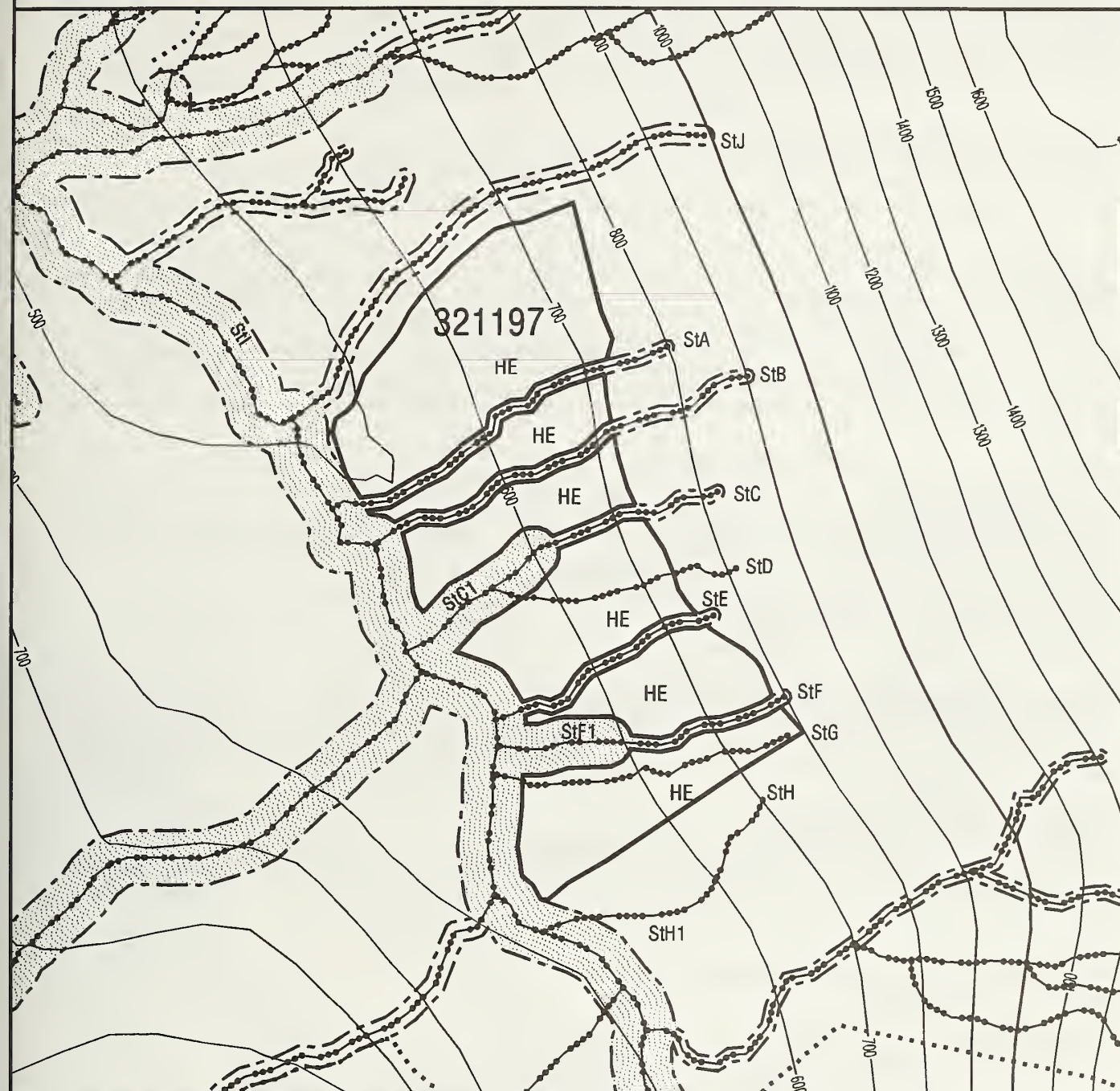
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 116 VCU: 82 UNIT: 321197 ALTERNATIVE(S): 2 4 5

ACRES: 46.72 TOTAL NET MBF: 546.7 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 128



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321199

MAP # 106

## STAND CHARACTERISTICS

Mid elevation stand of medium to large western hemlock and western hemlock-yellow cedar series. Defect and mortality is low to moderate. Stand structure is 2-storied in VC 6 and functionally even-aged in VC 5. Overstory age is 350+ years and the VC 6 understory cohort is 100 to 150 yrs old. The moderate west aspect has 1 class 3 and 1 class 4 v-notch streams. Soils are moderately well to somewhat poorly drained. Understory is blueberry, along with shield fern and devil's club in VC 6 and skunk cabbage in VC 5. Advanced conifer reproduction occupies less than 20% in the VC 5 but the younger cohort in the VC 6 occupies up to 60% of growing space. Regeneration potential is high in VC 6 and moderate in VC 5. Mistletoe is present but not abundant. Windthrow potential and slope stability are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) 90 ft slackline with 1 1/4" inch skyline. (2) Heavy partial harvest feasible below landing. (3) Complex guy anchors, split level landing, and tail trees required. 1000 feet of temporary road required.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: Intermediate. (2) Unit is hidden by topography and oblique angle to view from ferry.

**Soils / Geology:** (1) Middle slope is greater than 75% and instability evident, area deleted. BMP 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1, 2, 3a, 3b and 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 32c. (2) Streams 4 and 7 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec 3b. (4) Streams 3c, 6 and 7a (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Streams 5 and 6 - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Wildlife:** (1) No response to N Goshawk and marbled murrelet surveys.

**Cultural / Recreation / Subsistence:**

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Exclude Hazard Class IV soils from the commercial timber base.
- (6) Reduce sediment yield to fish bearing streams.
- (7) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative because timber yield and productivity is maximized and there is no conflict with visuals. The impact can be mitigated by feathering the lower unit edge, specifically leaving green culls in the outer parts of skyline corridors. Group selection was considered for the two-storied VC 6 but would have required helicopter harvest a; however, much of the stand with suitable structure was dropped for slope stability. Defer treatment would not provide a timber yield and would not regenerate a stand with high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The southeast boundary buffers a Class II with a break into a steep gradient Class III stream. The west boundary is a TTRA buffer on a Class II stream that separates the unit from a large muskeg. The northwest boundary is a setting boundary leaving a future unit between 321199 and 321017. 321199 was originally the west half of paper-plan unit 321018. A north-south strip of unstable slope > 75% was deleted and separates 321199 from 321018. Timber from helicopter unit 321197 would be landed at the landing for 321199. Tying boundaries to low site and muskeg transition will mitigate windthrow on harvest unit edges.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance and blowdown in the feathered edge.  
Schedule PCT and favor YC and SS.

## MONITORING PLAN

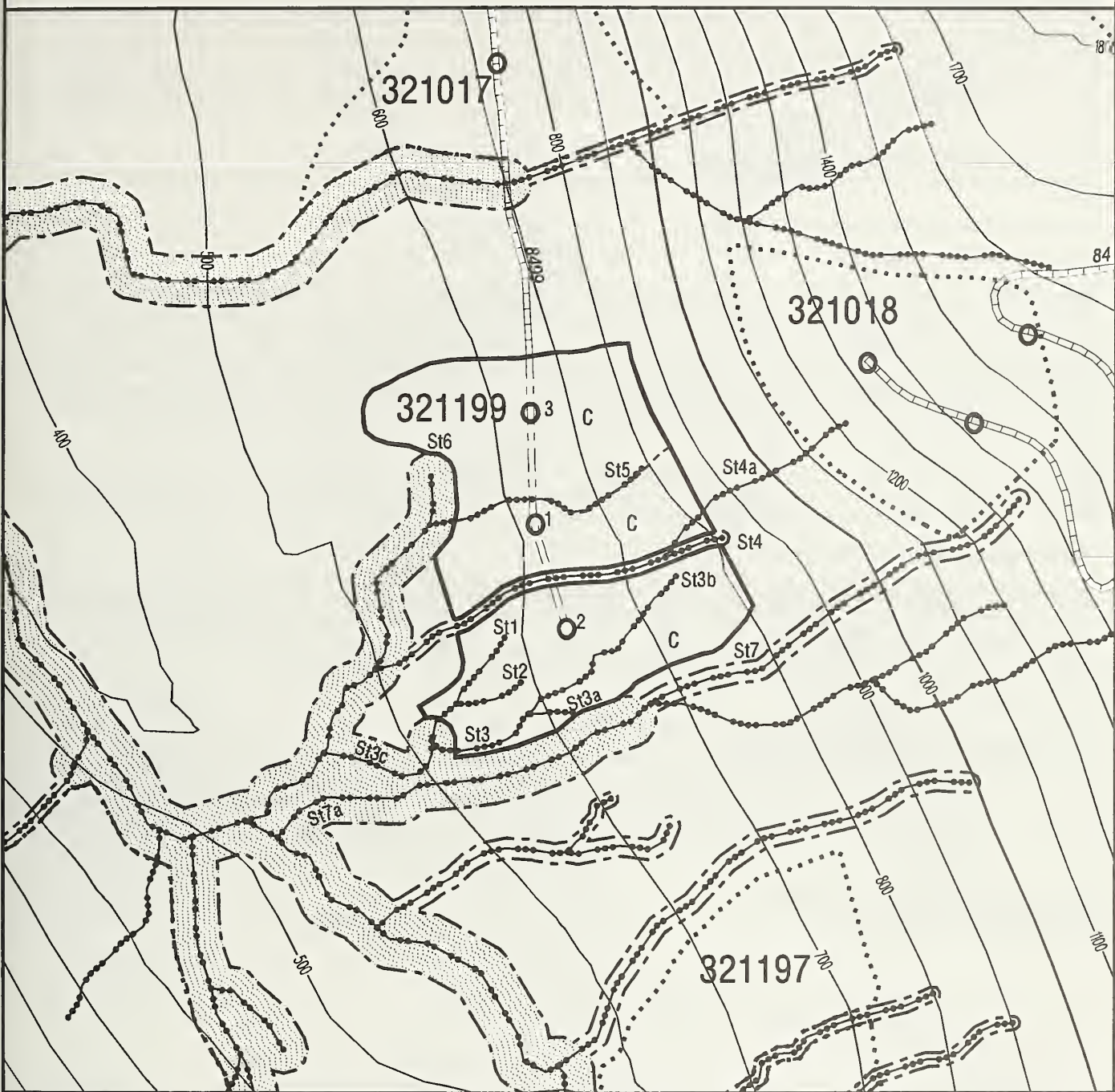
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 106 VCU: 82 UNIT: 321199 ALTERNATIVE(S): 2 4 7

ACRES: 36.26 TOTAL NET MBF: 1079 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 114



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322031

MAP #: 55

## STAND CHARACTERISTICS

Even aged functional in volume class 6 and multiple storied stand in volume class 4 the w. hemlock and mt. hemlock series respectively. This stand also has small amounts of Sitka spruce and y. cedar in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 30% on aspects from NE bounded by 2 significant Class I and II creeks. The eastern portion of the unit is bounded by the class I creek. Overstory ages are 200 to 350 years old with moderate high defect and significant amounts of conk, mistletoe, mechanical/animal damage, windthrow. The understory is <20% stocked with 20 to 80 year old w. hemlock and Sitka spruce which occur in groups throughout with poor to good vigor. Ground cover is sparse to moderately dense with Vaccinium associated with shield fern in VC 6 and with skunk cabbage and rusty menziesia in the VC 4 area. Some new windthrow found throughout unit. Volume class 6 area is the result of old wind event. Site is poor to very good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Unit partially suitable for partial harvest. Snags are safety issue. Some tailholds required within stream buffer. 1000 feet of temporary road needed.

**Visual Resource Management:** VOO Maximum Modification.

**Soils / Geology:** BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c. (2) Stream 4 (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Stream 2, 2c, 3 (MC, LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 2a (MM) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Conducted goshawk surveys, no response. Conducted songbird survey, no unusual response. Habitat suitable for red breasted sapsucker, marten and black bear. Recommend leaving green trees and snags for habitat structure. Clearcut with reserves was adopted for this unit. Avoid disturbance to nesting goshawks known to be in vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4,5& 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings on the break in slope between VC 6 and VC4 areas.
- (4) Retain minor amounts of green cull or high defect trees in the west line for vertical stand structure and cavity nesting habitat.
- (5) One end suspension
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcut with reserves** was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserves individual trees (green cull) on the break in slope between VC6 and VC4 when feasible, and scallops edges between settings on the lower slope that may be visible from Port Houghton. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls, yellow cedar or less common Sitka spruce when found. Reserves will provide wildlife habitat as well as a source of blowdown for ecological functioning. Tall timber to the north of the unit will partially hide the unit from view. Trees are 100-110 feet in total height. Shelterwood and group selection are not feasible with logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit is bounded to the west, east and a portion of the north by Class I and II stream buffers. The south is generally bounded by low site area.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Seed V-notch area with Sitka alder.
- (4) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

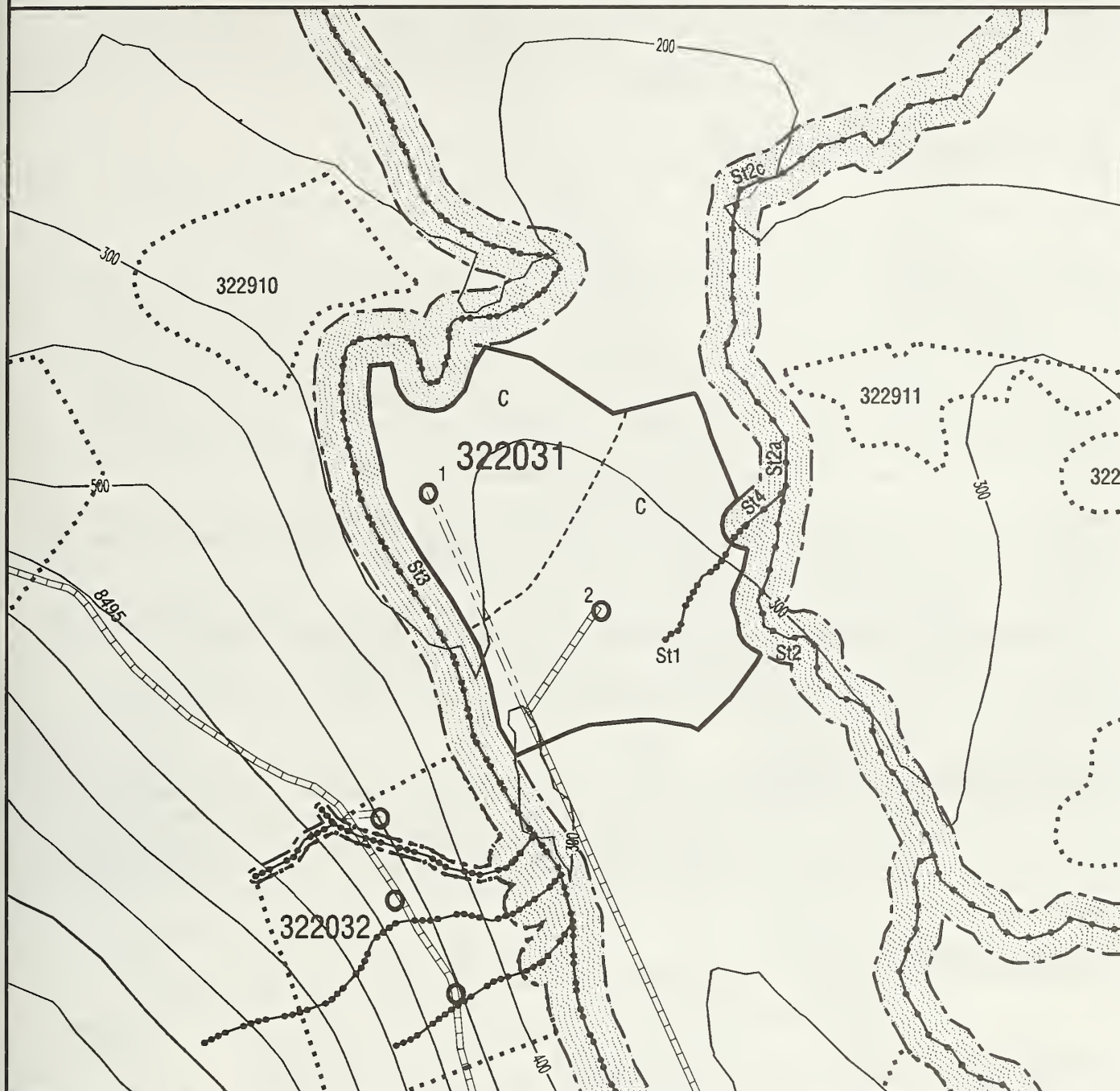
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 55 VCU: 82 UNIT: 322031 ALTERNATIVE(S): 4

ACRES: 42.1 TOTAL NET MBF: 880.4 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 174



EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED TEMP ROAD  
 UNIT BOUNDARY  
 ADJACENT UNIT  
 SETTING BOUNDARY  
 CONTOUR LINE  
 OWNERSHIP BOUNDARY  
 RIPARIAN MGMT AREA  
 CLASS 1 STREAM  
 CLASS 2 STREAM  
 CLASS 3 STREAM  
 CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

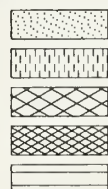
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○ 1 LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322032

MAP #: 67

## STAND CHARACTERISTICS

Even aged functional stand in the w. hemlock series. This stand also has trace amounts of Sitka spruce in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 30 to 60% on NE aspects bisected by 3+ small creeks, including 2 small high gradient V-notch. The eastern portion of the unit is bounded by a class II stream buffer. Overstory age is 350 years old with moderate to high defect and significant amounts of conk, mistletoe, mechanical/animal damage, defoliators, and windthrow. The understory is 20-40% stocked with 20 to 50 year old w. hemlock which occur in groups throughout with fair to good vigor. Ground cover is moderate to dense Vaccinium associated with WH reproduction, devils club, and shield fern. Significant ongoing windthrow found throughout the unit. Site is good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Skyline. Split yard away from small V-notch (stream #1). Retain green cull and understory at setting boundaries. Tailtrees required

**Visual Resource Management:** VQO Maximum Modification. Viewed from the middle ground of visual priority travel route. Unit meets VQO.

**Soils / Geology:** No concerns listed. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1, 1a (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Stream 2, 3a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (4) Stream 1b, 2b, 3b (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 4 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (6) Stream 5 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Conducted goshawk survey, no response. Conducted songbird survey, no unusual birds. Red squirrel. Habitat for red breasted sapsucker, marten, and black bear. Recommend leaving green trees and snags for habitat diversity and structure. Clearcut with reserves was adopted for this unit. Avoid disturbance to nesting goshawks known to be in vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings and rounding unit corners on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the west line for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Protect stream banks along Stream 3 near landing #1.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserve some individual trees (green cull) on upper slopes along the east line above the 8495 road when feasible and scallop edges between settings on the upper slope that may be visible from Port Houghton. Selected alternative provides good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls or less common Sitka spruce when found. Reserves will provide wildlife habitat as well as a source of blowdown for ecological functioning. Also during final layout round upper edges of unit for visual mitigation. Tall timber to the east and north of the unit will partially hide the unit from view. Trees are 100-120 feet in total height. Shelterwood and group selection are not feasible with logging system and not desirable with dwarf mistletoe infection. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

East boundary is class II stream buffer. West boundary is adjacent to hazard class 4 soils. North and south boundaries are at edge of logical logging limits.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Schedule precommercial thinning. Favor S. spruce when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

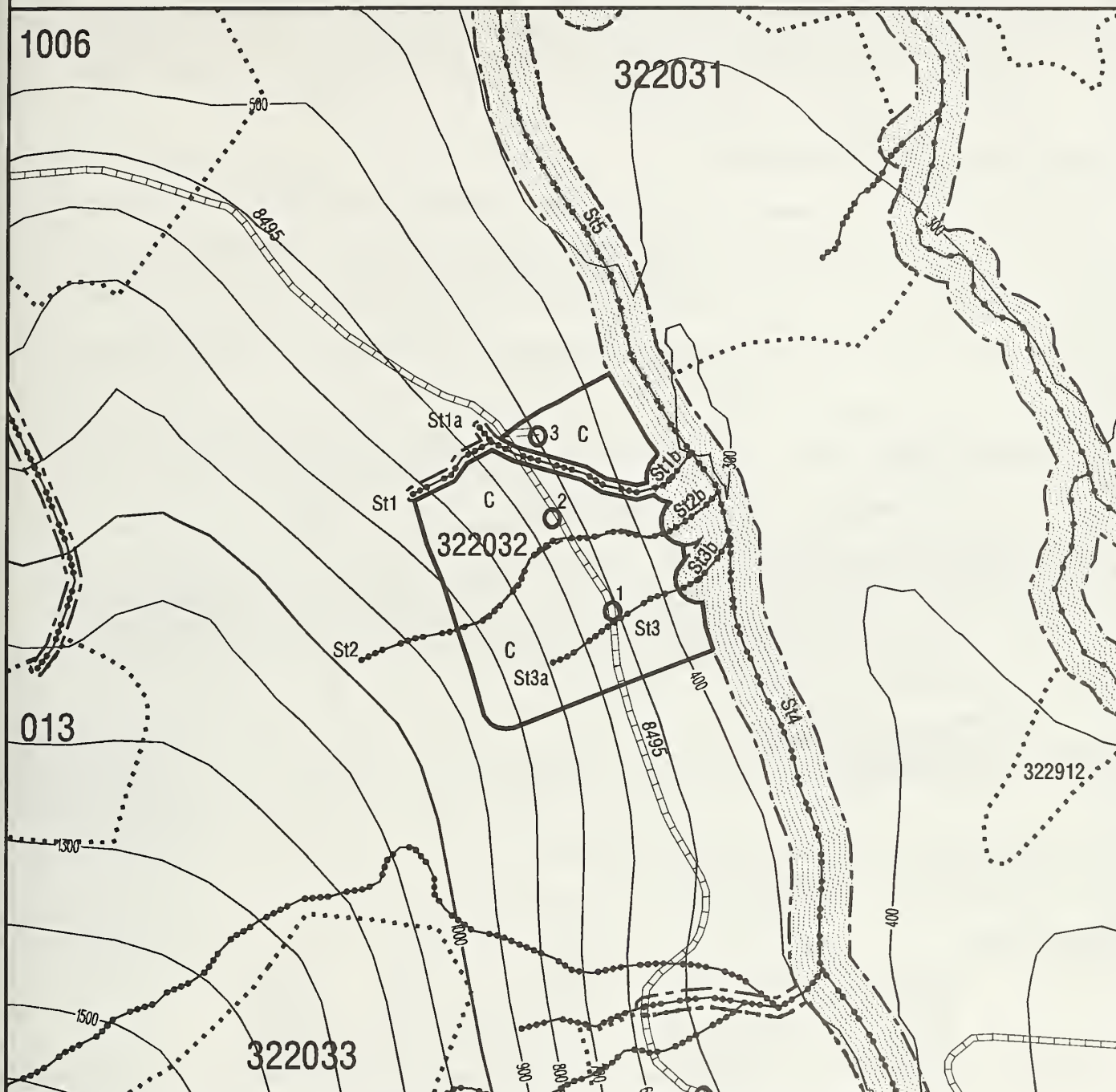


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 67 VCU: 82 UNIT: 322032 ALTERNATIVE(S): 2 4 7

ACRES: 22.12 TOTAL NET MBF: 738.3 QUAD(S): SUMB5 QUARTER QUAD(S): SE

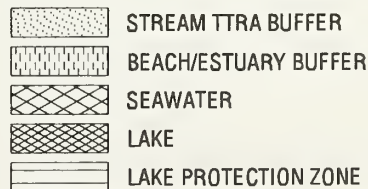
PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 125



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
★ EAGLE TREE



CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322033

MAP #: 79

## STAND CHARACTERISTICS

Even aged functional stand in the w. hemlock series. This stand also has Sitka spruce and a trace of y. cedar in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 30 to 55% on aspects from NE to E. Overstory ages are 250 to 400 years old with moderate defect and significant amounts of conk, mechanical/animal damage and windthrow. The understory is <20% stocked with 20+ w. hemlock and Sitka spruce which occur in groups, throughout with fair to good vigor. Ground cover is sparse to dense Vaccinium associated with devils club and shield fern. Some evidence of new windthrow found on the upper portion of the unit. Site is good to very good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter yard.

**Visual Resource Management:** VQO Maximum Modification. Viewed from middleground on small boat route. Unit meets its VQO.

**Soils / Geology:** There does not appear to be major stability problems associated with this unit. NE corner was altered because it had some old chutes. Harvesting should not create a stability problem. Mapped stability Class III area adjacent to east class IV. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1, 2, 3, 4, 5, - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Habitat suitable for brown creeper, marten, black bear. Marginal for deer. Maintain live trees and snags for habitat diversity. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert partially understocked stand, volume class 5& 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by utilizing shelterwood method and rounding unit corners on the upper slopes.
- (4) Retain green cull or high defect trees in the west line for vertical stand structure and cavity nesting habitat.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) Provides a moderate volume return from a stand that is past its peak productivity. (2) Reserve individual trees (green cull) uniformly with Shelterwood on north setting. Provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls, y. cedar or Sitka spruce when found. Reserves will provide wildlife habitat as well as a source of blowdown for ecological functioning. Also during final layout round edges of unit for visual mitigation. Other alternatives that were rejected: Clearcut would not mitigate wildlife and visual concerns. Group selection would not be as feasible operationally, and would not create the desired vertical structure over the long term. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Northeast portion of boundary is Class IV channel. Balance of unit is bounded for logical harvest unit along mainline road and spur.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

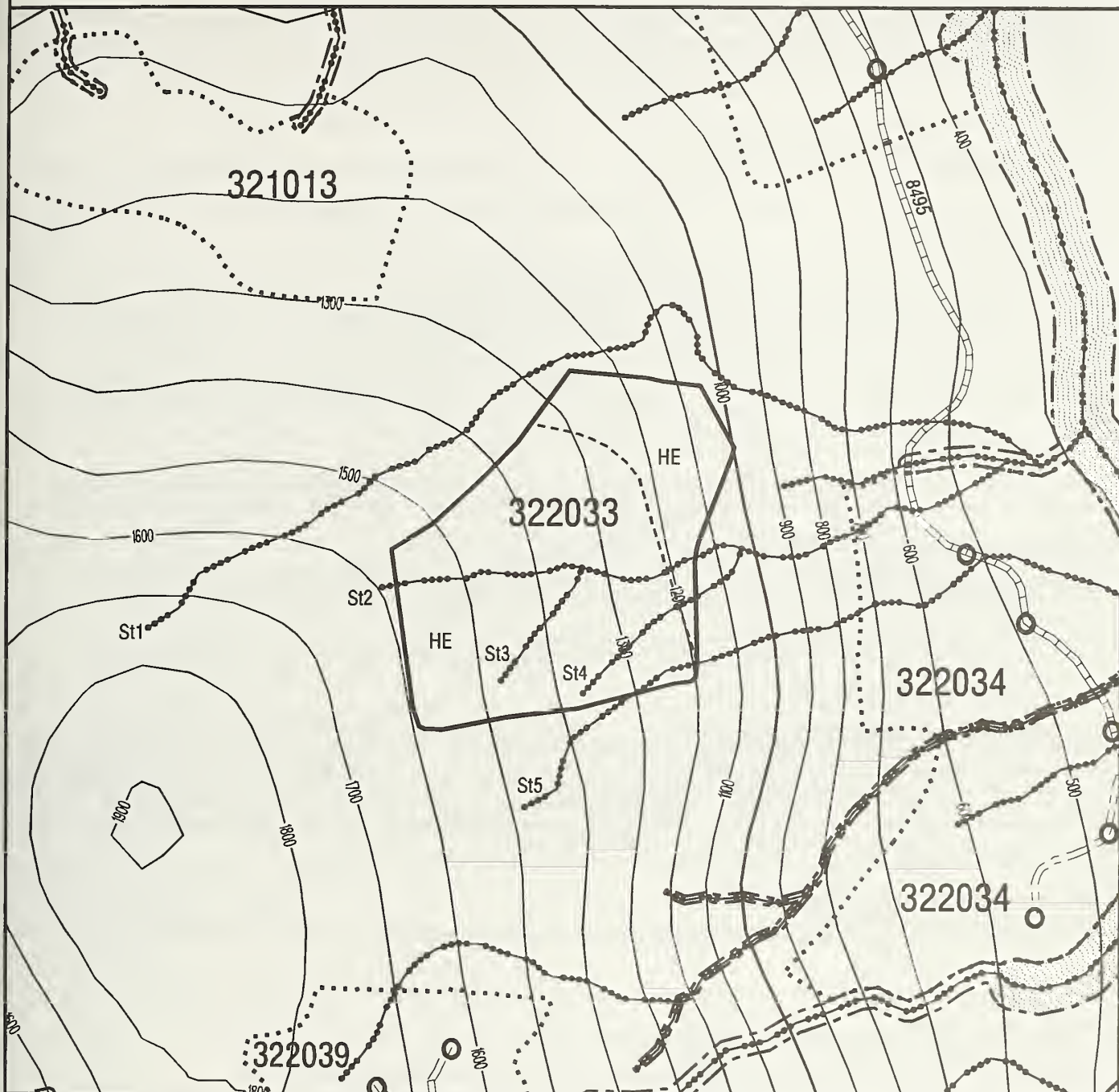


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 79 VCU: 82 UNIT: 322033 ALTERNATIVE(S): 2 4

ACRES: 35.38 TOTAL NET MBF: 845.8 QUAD(S): SUMB5 QUARTER QUAD(S): SE

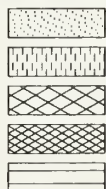
PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 126



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
□ ROAD BEGINS  
○ LANDING & NUMBER  
★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322034

MAP #: 81

## STAND CHARACTERISTICS

Mosaic stand in the w. hemlock and Sitka spruce series. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 90% on aspects from NE to E which are bisected by a significant V-notch creek. The eastern portion of the unit is bounded by a class II buffer. Overstory ages are 150 to 350 years old with moderate to high defect and significant amounts of mistletoe, mechanical/animal damage and windthrow. The understory is 20-40% stocked with 20 to 50 yearold w. hemlock and Sitka spruce which occur in groups throughout with fair to good vigor. Ground cover is sparse to moderately dense vaccinium associated with devils club, shield fern, and skunk cabbage. Continuous windthrow found throughout the unit. Site is good to very good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Small slackline. Extensions required outside of unit. Snag retention is a safety issue. Rig through stream buffers. 10 station temporary road required.

**Visual Resource Management:** VQO Maximum Modification. Viewed from the middle ground of visual priority travel route. Unit meets its VQO. Narrow at top is good. Leave brush as possible.

**Soils / Geology:** No concerns listed. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream A, D, D1, F, H - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream B - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. (3) Stream C - Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (4) Stream B1, E, G, (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (5) Stream G1 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (6) Stream I (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Conducted goshawk survey, no response. Conducted songbird survey, no unusual response. Saw bear and moose sign. Habitat suitable for hairy woodpecker, red breasted sap sucker, brown creeper, marten and black bear. Recommend leaving green trees and snags for habitat structure. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 6 & 7 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the west line for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserve some individual trees (green cull) on upper slopes along the west line above 8495 road when feasible and scallop edges between settings on the upper slope that may be visible from Port Houghton. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls, or less common Sitka spruce when found. Reserves will provide wildlife habitat as well as a source of blowdown for ecological functioning. Tall timber to the north of the unit will partially hide the unit from view. Trees are 100-140 feet in total height. Unit is generally oblique to view. Shelterwood and group selection are not feasible with logging system and not desirable with dwarf mistletoe infection and trees of poor crown structure. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

East boundary is the buffer of the Class II LC1 channel. North and south boundaries are Class II & III stream buffers. The western boundary represents the logical logging.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

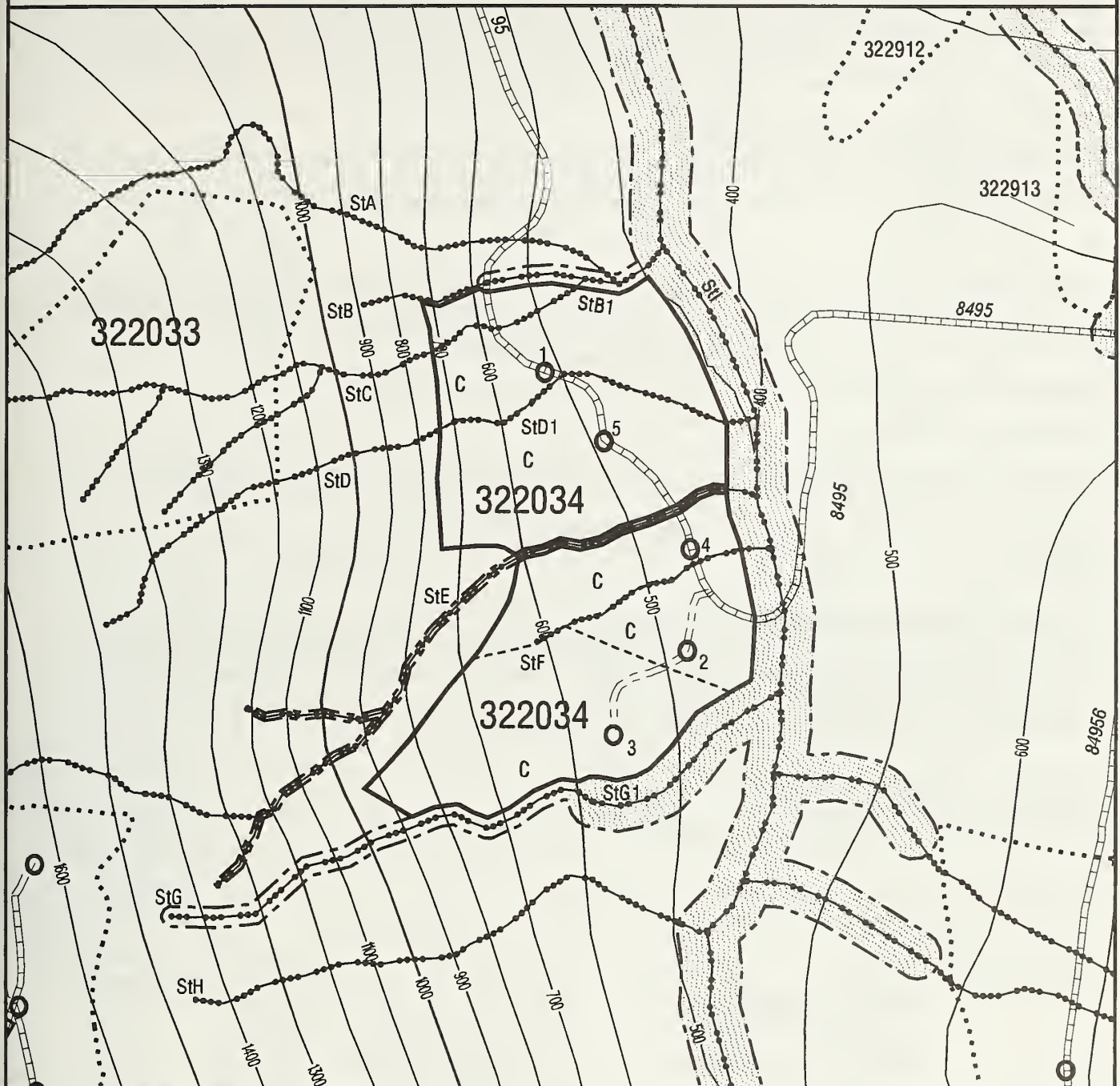


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 81 VCU: 82 UNIT: 322034 ALTERNATIVE(S): 2 4 7

ACRES: 53.71 TOTAL NET MBF: 1680.5 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 175



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

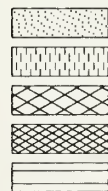
HE = HELICOPTER  
SV = SHOVEL  
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322035

MAP #: 83

## STAND CHARACTERISTICS

Multiple storied stand in the Sitka spruce, w. hemlock/y. cedar series. The stand is composed of medium to large, high quality sawtimber with minor amounts of utility pulp. Slopes range from 0 to 90% on aspects from N to NE. The southern portion of the unit is bounded by a ridgetop/muskeg and flat muskeg to the north. Overstory ages are 150 to 300 years old with high defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage, defoliators and windthrow. The understory is <20% stocked with 20 to 80 year old W. hemlock and Sitka spruce which occur in groups throughout with poor to fair vigor. Ground cover is dense Vaccinium associated with rusty menziesia, devils club and skunk cabbage. Significant windthrow events created uneven age condition with pockets of varying age timber and premerch. Site is fair over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Skyline. Unit boundary avoids low site area and captures merchantable timber. 8 sta. temp. road req'd. Recommend grouping snags and leave trees in low volume area between settings 3 & 4 for visual and wildlife mitigation. Not otherwise suitable for partial cut.

**Visual Resource Management:** VQO Maximum Modification. Viewed from the background of visual priority travel routes.

**Soils / Geology:** No concerns listed.

**Fisheries / Watershed** (1) Stream 1-5 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 6, 7 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b.

**Wildlife:** Habitat suitable for red breasted sapsucker and black bear. Reserve habitat near stream-(this area was reserved).

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4 & 5 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention between settings on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the west line for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) One end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserve some individual trees (green cull) on upper slopes when feasible and scallop edges between settings on the upper slope that are be visible from Port Houghton. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls, or less common Sitka spruce or y. cedar when found. Reserves in this unit will generally occur between settings in an island. Shelterwood and group selection are not feasible with logging system and not desirable with dwarf mistletoe infection and trees of poor crown structure. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

North, south and east boundaries adjacent to low site/ muskeg areas. West line is the logical logging system boundary.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

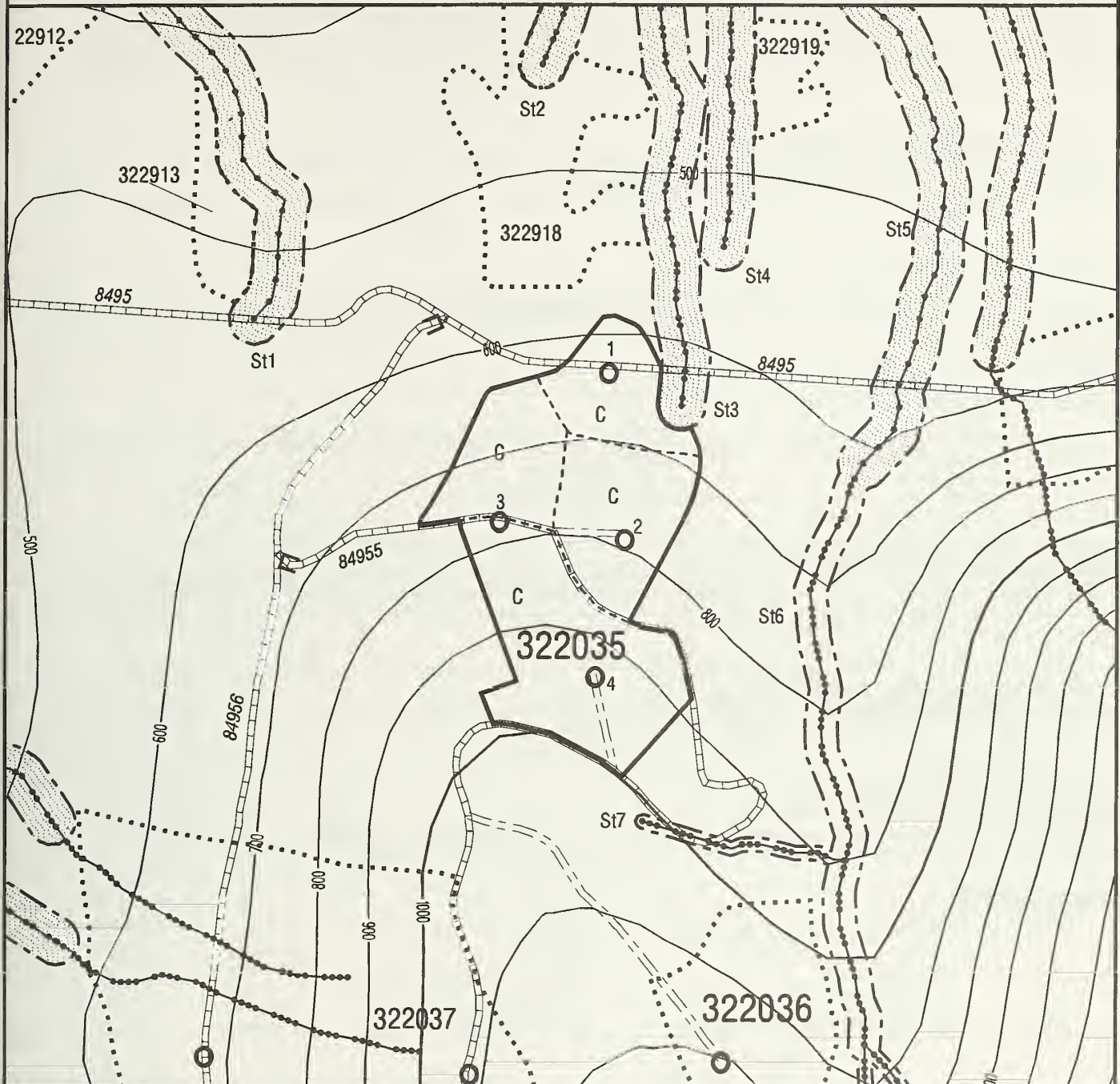


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 83 VCU: 82 UNIT: 322035 ALTERNATIVE(S): 2 4 7

ACRES: 31.93 TOTAL NET MBF: 669 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 140



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

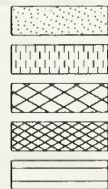
HE = HELICOPTER  
SV = SHOVEL  
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322036

MAP #: 96

## STAND CHARACTERISTICS

Multiple storied stand in the w. hemlock series. This stand also has Sitka spruce in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 25 to 90% on aspects from N to NE. The western portion of the unit is bounded by a ridgetop/muskeg. Overstory ages are 250 to 350 years old with moderate to high defect and significant amounts of conk, root rot, mechanical/animal damage, and some windthrow. The understory is 40-60% stocked with 20 to 60 years old w. hemlock and Sitka spruce which occur in groups throughout with fair to good vigor. Ground cover is dense vaccinium associated with devils club, shield fern, and skunk cabbage. Site is very good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** 70' slackline. Boundary was modified to avoid class 4 soils, low site and to improve deflection. Not suitable for partial cutting. Snags are a safety issue. Complex anchors, tailtrees required. 15 stations of temporary road required.

**Visual Resource Management:** VQO Maximum Modification. Viewed from background of visual priority travel route. Unit conforms nicely to the topography.

**Soils / Geology:** No concerns listed. BMP 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1-4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b.

**Wildlife:** Habitat for red breasted sapsucker and black bear.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 5 & 6 with diseased, mature overstory to a vigorous young stand.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts by unit configuration and size combined with mitigation's in adjacent units.
- (4) Minimize sediment yield to fish bearing stream.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut best meets resource objectives because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Generate a new vigorous stand. (3) This small unit conforms well to the topography and will be less noticeable with visual mitigation in adjacent units. (4) Reserves will provide wildlife habitat as well as a source of blowdown for ecological functioning. Other alternatives rejected: Shelterwood, group selection, or overstory not reasonable due to logging constraints. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Bounded to the east by a Class III stream buffer. Bounded to the west by low site area.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances.
- (2) Remove reproduction that is infected with dwarf mistletoe.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

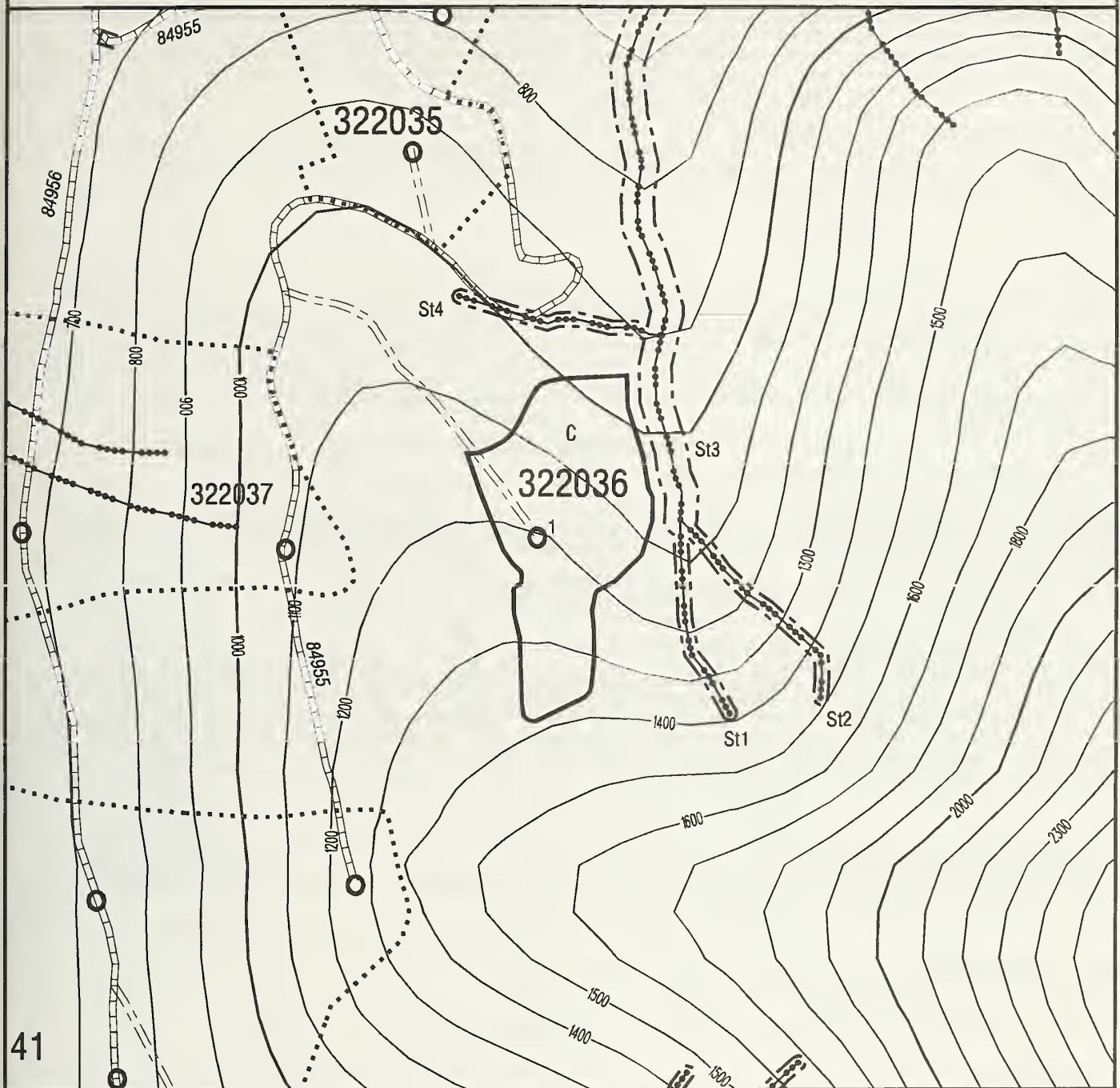
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 96 VCU: 82 UNIT: 322036 ALTERNATIVE(S): 2 4 7

ACRES: 15.75 TOTAL NET MBF: 487.7 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 139



## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

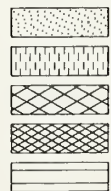
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322037

MAP #: 94

## STAND CHARACTERISTICS

Multiple storied stand in the w. hemlock series. This stand also has Sitka spruce and trace amounts of y. cedar in the overstory. The stand is composed of medium to large, high quality sawtimber with significant amounts of utility pulp. Slopes on aspects from NE to W which are bisected by V-notch. The eastern portion of the unit is bounded by a ridgetop/muskeg. Overstory ages are 250 to 350 years old with moderate defect and significant amounts of mechanical/animal damage and minor windthrow. The understorey is 20-40% stocked with 20 to 80 year old W. hemlock and Sitka spruce which occur in groups throughout with poor good vigor. Ground cover is moderate to dense Vaccinium associated with devils club, skunk cabbage and shield fern. Site is good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Running Skyline in lower setting and Slackline in upper setting. Split yard at sensitive Class IV stream (stream A). Lower landing is continuous along the 84956 road. Unit reconfigured to avoid fish habitat to west. Suitable for partial harvest. Snag retention is a safety issue.

**Visual Resource Management:** VQO Maximum Modification. Viewed in mid-ground of visual priority travel route.

**Soils / Geology:** No concerns listed. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream B - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream A - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Streams C, E (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream D (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Survey for goshawk- no response. Survey for marbled murrelet- high density. Red-tailed hawk observed. Recommend leaving reserve trees and snags for habitat structure. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 5, with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts, stream temperature sensitivity, and wildlife concerns by shade retention along Class III, shelterwood method on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the lower setting for vertical stand structure and cavity nesting habitat.
- (5) One end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserves individual trees (green cull, high defect trees, S. spruce and y. cedar) and groups to meet resource objectives and still provide a high timber return. Retain green cull and high defect trees around the balance of the unit at a rate of 8-15 per acre. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls, y. cedar or less common Sitka spruce when found. Also during final layout round edges of unit for visual mitigation. Clearcut and clearcut with reserves would not mitigate wildlife and visual concerns as well. Group selection does not reserve trees to meet structural objectives, and provides less volume at more cost. In addition, there are more opportunities for the small units to ravel through edge blowdown. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The west line is bounded by Class II buffers and a muskeg/low site area. The east line is bounded by road 84955 and low site areas. The north and south boundaries are the logical extent of logging systems capabilities.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Seed V-notch area with Sitka alder.
- (4) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Date	Activity	Standard	Who
Year 3	Stocking survey & reserve tree assessment.	>300TPA, plant SS if not at 50TPA	Silviculturist
Year 5	Stocking survey and certification	>300TPA; crown closure	Silviculturist
Year 15	Precommercial Thin Survey	200TPA free to grow	Silviculturist
Year 16-25	Schedule and certify Precommercial thinning	> 200TPA incl. >35 TPA of SS	Silviculturist

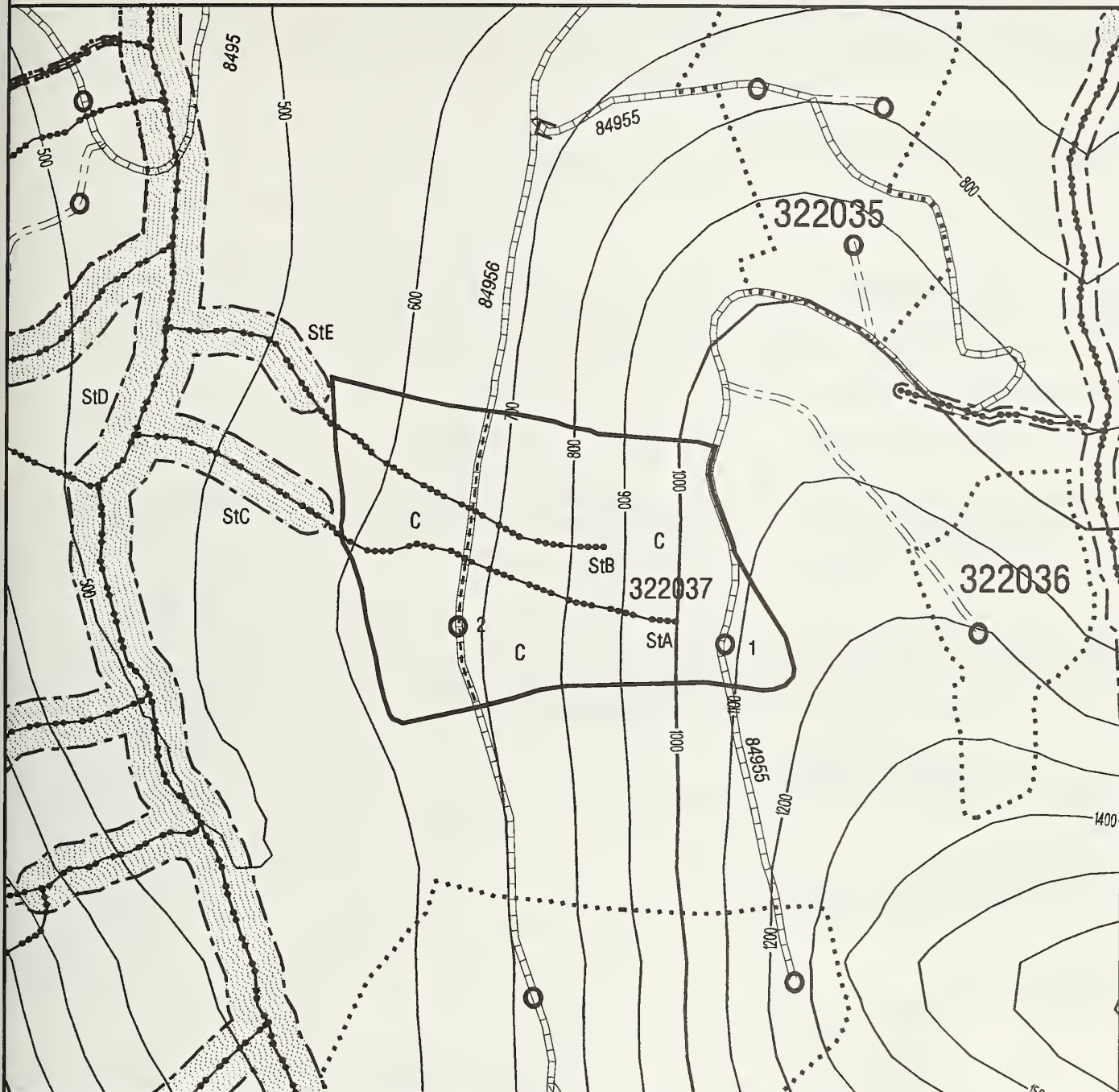


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 94 VCU: 82 UNIT: 322037 ALTERNATIVE(S): 2 4 7

ACRES: 43.86 TOTAL NET MBF: 786.2 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 139



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

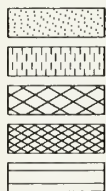
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

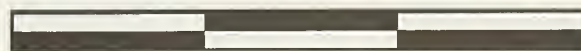
LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0

660

1320

1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322039

MAP #: 93

## STAND CHARACTERISTICS

Even aged functional with patches of two-storied stands in the w. hemlock series. This stand also has Sitka spruce in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes have short steep pitches on aspects from NE to E. The eastern portion of the unit is bounded by a ridgetop/muskeg. Overstory ages are 300 years old with moderate defect and significant amounts of conk, mechanical/animal damage, and evidence of windthrow activity. The understory is <20% stocked with 20 to 50 year old w. hemlock in groups throughout with good vigor. Ground cover is sparse to moderately dense Vaccinium associated with devils club, shield fern and skunk cabbage. Scattered windthrow found throughout. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** NW setting Slackline; East settings Gravity Return. SW setting Shovel. 90 foot tower in cable area. Not suitable for partial cut. Snag retention is a safety issue. Complex anchors, tailtrees, required. 21 stations of temporary road required.

**Visual Resource Management:** VQO Maximum Modification. Viewed from the middleground from visual priority travel route. Narrow base and rounded tops emulates natural openings.

**Soils / Geology:** Hazard Class 4 soil area deleted. BMP 13.5 applicable.

**Fisheries / Watershed.** (1) Stream 1 and 4 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Stream 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** Habitat suitable for black bear.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 5 & 6 with diseased, mature overstory to a vigorous young stand.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts by unit configuration and size combined with mitigation's in adjacent units.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Generate a new vigorous stand (3) This small unit conforms well to the topography and will be less noticeable with visual mitigation's in adjacent units. Shelterwood, group selection, or overstory not reasonable due to logging constraints and operational limitations. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Bounded to the west by ridgetop and low site areas. Bounded to the east by steep class 4 soils. Bounded to the north and south by logical harvest system limits and settings retained between other units.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances.
- (2) Remove reproduction that is infected with dwarf mistletoe.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

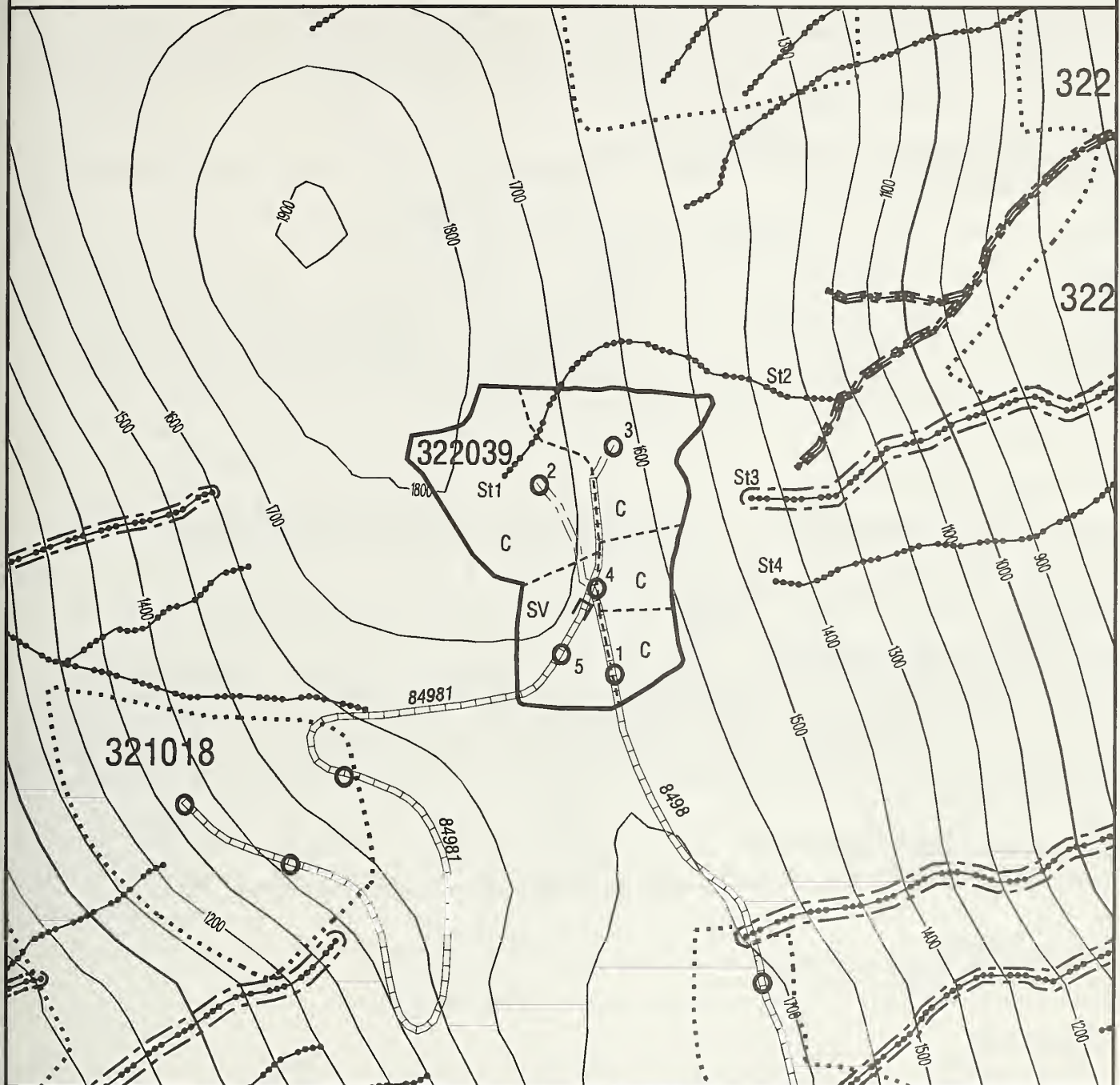
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 93 VCU: 82 UNIT: 322039 ALTERNATIVE(S): 2 4 5

ACRES: 26.89 TOTAL NET MBF: 690.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 49 ROLL NO.: 684 PRINT NO.: 126



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322040

MAP #: 110

## STAND CHARACTERISTICS

Even aged functional, mosaic, two-storied, multiple storied stand in the w. hemlock series. This stand also has minor amounts of Sitka spruce in the overstory. The stand is composed of medium to large, high quality sawtimber with minor amounts of utility pulp. Slopes range from 20 to 40% on E aspects. The western portion of the unit is bounded by a ridgetop/muskeg. Overstory ages are 200 to 300 years old with high defect and significant amounts of conk, mechanical/animal damage, defoliators, wind damage. The understory is 21%-40% stocked with 20 to 60 year old w. hemlock which occur in groups throughout with fair to good vigor. Ground cover is sparse to dense vaccinium associated with skunk cabbage and shield fern. Portions of the unit have very open "park like" ground cover. Shorter dense stands in this unit generally appear to be wind firm in their present condition. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Slackline with 90 foot tower. Tailtrees required. Unit has a potential for a heavy partial cut. Snag retention is a safety issue. Adjust landings to avoid windfirm zones associated with streams (1,2).

**Visual Resource Management:** VQO Max. Modification. Viewed from the background of small boat route. This unit meets VQO.

**Soils / Geology:** North end of unit originally mapped as hazard class 4 soil. Field check with USFS determined this area should be hazard class 3 soil. BMP 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1, 2, 2a, 4, 4a, 5, 6, 7 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 1a, 2b, 4b, 5a (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** No concerns.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 4,5& 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by the use of shelterwood to the north and south.
- (4) Retain amounts of green cull, S. spruce or high defect trees in the north and south setting for vertical stand structure and cavity nesting habitat.
- (5) One end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcut and Shelterwood with reserves** was selected because: Overall provides a high volume return from a stand that is past its peak productivity. Reserve individual trees (green cull, high defect and Sitka spruce) uniformly with **Shelterwood** on north and south setting. This harvest method will retain significant biological structure for habitat and visual mitigation while being operationally feasible. Approximately 80% to 85% of the volume in these settings will be harvested. Site quality will be maintained or improved. Warmer soil will increase biological activity and increase decomposition of excess organic material. Some reserve trees will blow down creating pit and mound microtopography. and mixing mineral and organic soil layers and potentially reducing podzolization. Center 2 settings are **Clearcut** that will provide side by side adaptive management comparisons with shelterwood method. Group selection is not feasible with logging systems. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

West boundary is a ridge top muskeg - low site area. East boundary is the extent of feasible logging systems and some areas of hazard class 4 soils

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

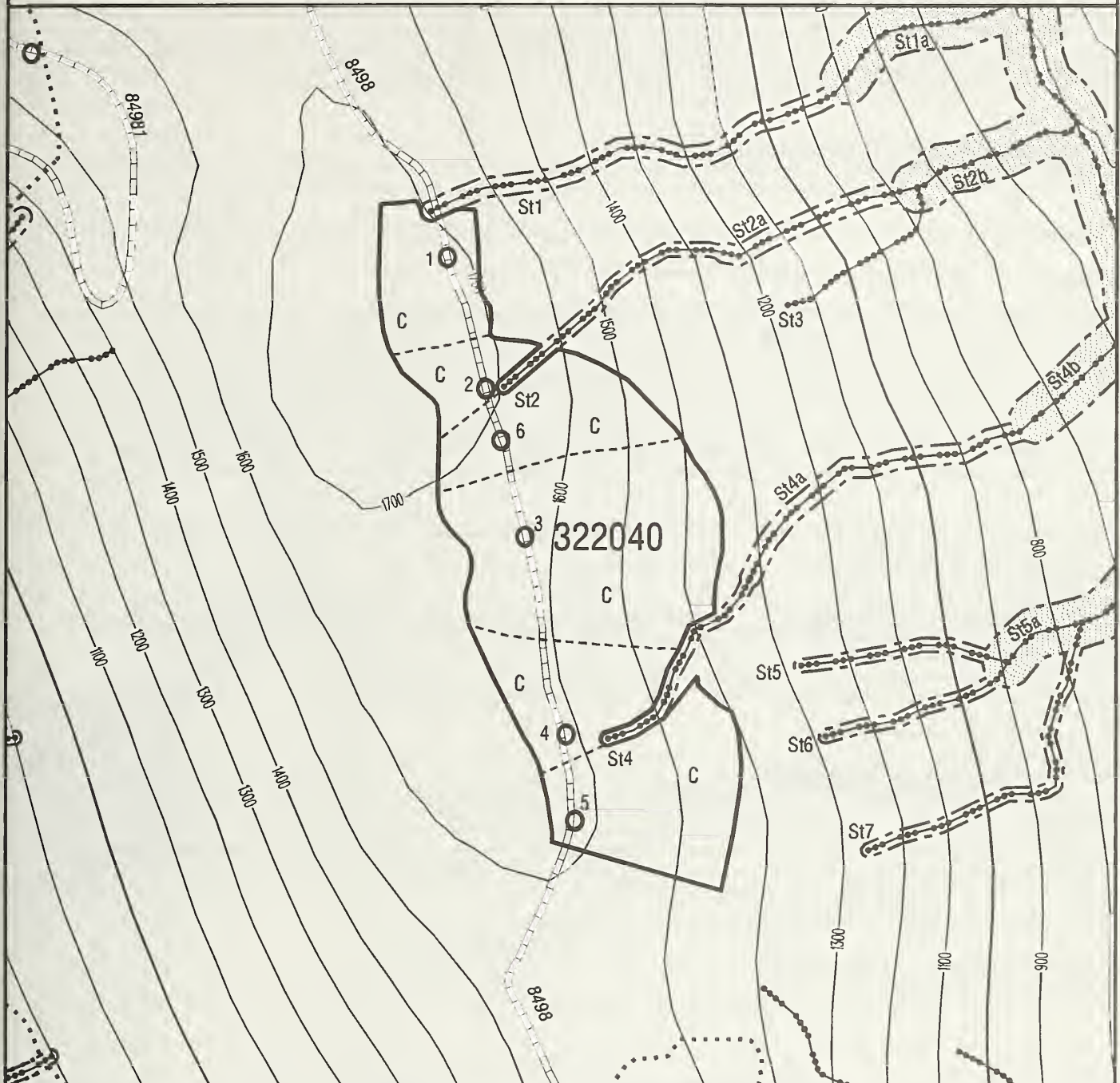
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 110 VCU: 82 UNIT: 322040 ALTERNATIVE(S): 2 4 5 7

ACRES: 52.22 TOTAL NET MBF: 1065.3 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 176



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

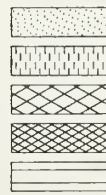
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○ LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322041

MAP: 108

## STAND CHARACTERISTICS

Two storied stands in the w. hemlock, Sitka spruce and w. hemlock/y. cedar series. The stand is composed of medium to large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 10 to 80% on aspects from SW to W which are bisected by several small creeks. The western portion of the unit is bounded by a class II buffer. Overstory ages are 150 to 400 years old with moderate defect and significant amounts of conk, mistletoe, mechanical/animal damage, defoliators, windthrow. The understorey is 20-40% stocked with 20 to 30 year old W. hemlock and Sitka spruce which occur in groups throughout with fair to good vigor. Ground cover is moderate to dense Vaccinium associated with devils club and skunk cabbage. Scattered new windthrow found throughout. Site is good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** 90' tower-Slackline. Unit extended to NW adequate trees for tail holds. 700 foot buffer between north boundary and unit # 322037 for wildlife concerns. Suitable for heavy partial cut. Snag retention is safety concern. Temp. rd. to #2 landing 14% fav. grade. Hoe and end haul construction.

**Visual Resource Management:** VQO Maximum modification. Most of unit oblique to view. Should meet VQO. Keep top rounded to emulate natural forest opening.

**Soils / Geology:** No concerns listed. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 2 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 3 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 4 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Survey for goshawk- no response. Survey for marbled murrelet- high density. Recommend leaving live reserve trees and snags to maintain habitat structure. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class ,5 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention along V-notch creek, shelterwood method on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the lower setting for vertical stand structure and cavity nesting habitat.
- (5) Partial suspension.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves was selected because: (1) Provides a high volume return from a stand that is past its peak productivity.(2) Reserve individual trees (green cull, high defect trees, S. spruce and y. cedar) and feather edges along class III V-notch on the lower setting. Retain green cull and high defect trees around the balance of the unit at a rate of 3-8 per acre. Systems will provide good phenotypic trees for vertical and cavity nesting habitat structure and visual softening of visual impacts. Individual reserves should be green culls, y. cedar or less common Sitka spruce when found. Also during final layout round edges of unit for visual mitigation. Clearcut would not mitigate wildlife and visual concerns. Shelterwood with reserves would not harvest as much timber, and would only be marginally better in providing wildlife habitat and mitigating visual quality concerns. Group selection is operationally difficult and costly in this topographic setting, and does not provide as well for habitat and within-stand vertical structure diversity.

Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

West boundary is Class II stream buffer; east boundary is logical yarding limit. Northern and southern boundaries are logical setting boundaries for alternate future harvest units.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Seed V-notch area with Sitka alder.
- (4) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

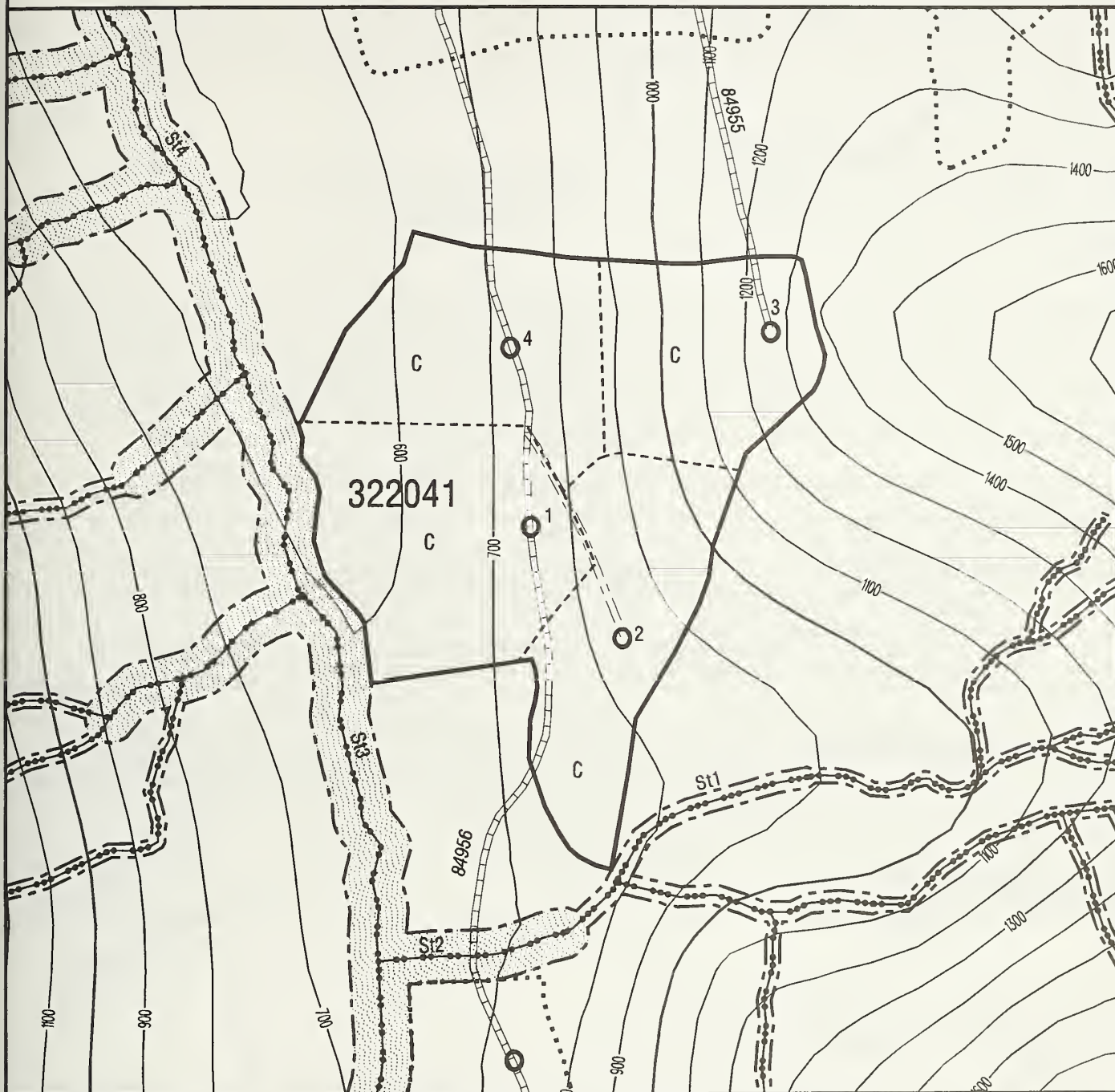



MAP NO.: 108 VCU: 82 UNIT: 322041 ALTERNATIVE(S): 2 4 7

ACRES: 79.15 TOTAL NET MBF: 2432.5 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 139

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 139



- 
- EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED TEMP ROAD  
 UNIT BOUNDARY  
 ADJACENT UNIT  
 SETTING BOUNDARY  
 CONTOUR LINE  
 OWNERSHIP BOUNDARY  
 RIPARIAN MGMT AREA  
 CLASS 1 STREAM  
 CLASS 2 STREAM  
 CLASS 3 STREAM  
 CLASS 4 STREAM






HE = HELICOPTER  
SV = SHOVEL  
C = CABLE

St1 STREAM ID IN NARRATIVE

U ROAD BEGINS

O<sup>1</sup> LANDING & NUMBER

★ EAGLE TREE

- |   |                      |
|---|----------------------|
|  | STREAM TTRA BUFFER   |
|  | BEACH/ESTUARY BUFFER |
|  | SEAWATER             |
|  | LAKE                 |
|  | LAKE PROTECTION ZONE |

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322042

MAP: 120

## STAND CHARACTERISTICS

Mosaic of two-storied and even age functional stands in the w. hemlock and Sitka spruce series. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 40% on aspects from SW to W. The western portion of the unit is bounded by a class II buffers on the main creek as well as several feeder creeks. Overstory ages are 180 to 400 years old with moderate to high defect and significant amounts of conk mistletoe, mechanical/animal damage and some windthrow on upper slopes. The understory is <20% stocked with 20 to 60 year old w. hemlock and Sitka spruce which occur in groups throughout with poor to good vigor. Ground cover is sparse to moderately dense Vaccinium associated with devils club, skunk cabbage and shield fern. Swampy conditions on the northern and northwest portions of the unit. Site is fair to very good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Running Skyline for all settings. Complex anchors required. Rigging in stream buffer necessary. Unit boundary was modified to avoid unstable areas, fish buffers and conform to logical logging limits. Partial cutting is not feasible. Snag retention constitutes a safety hazard. BMP 13.9.

**Visual Resource Management:** VQO Maximum modification. Should meet VQO.

**Soils / Geology:** No concerns listed in post field comments. North area of original unit had soil concerns but was eliminated during field layout. Soil review of setting #5 at layout. Recent landslide above unit. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 1, 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 3, 4, 7, 8 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 6 (FS) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (4) Stream 5 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Habitat suitable for hairy woodpecker, brown creeper, marten and black bear. Recommend leaving live trees and snags to maintain habitat density. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 5, 6 & 7 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of wildlife concerns by retention between settings lower slopes.
- (4) Retain minor amounts of green cull or high defect trees, Sitka spruce along the west line, between settings, for vertical stand structure and cavity nesting habitat. This retention should be compatible with logging systems. Retain some snags in these locations if available and deemed safe for logging crews.
- (5) Maintain fish habitat adjacent to unit.
- (6) One end suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcut with reserves** was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserve some individual trees (green cull, high defect or Sitka spruce) on lower slopes along the west line, between settings and below the 84956 road. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and provide Sitka spruce seed source. Individual reserves should be green culls or less common Sitka spruce when found. Shelterwood and group selection are not feasible with logging system and not desirable with dwarf mistletoe infection. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

West boundary is Class II buffers. East boundary is the extent of logging system capability and Hazard class 4 soils. The northern and southern boundaries are Class II streams

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of some reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Schedule precommercial thinning. Favor S. spruce when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

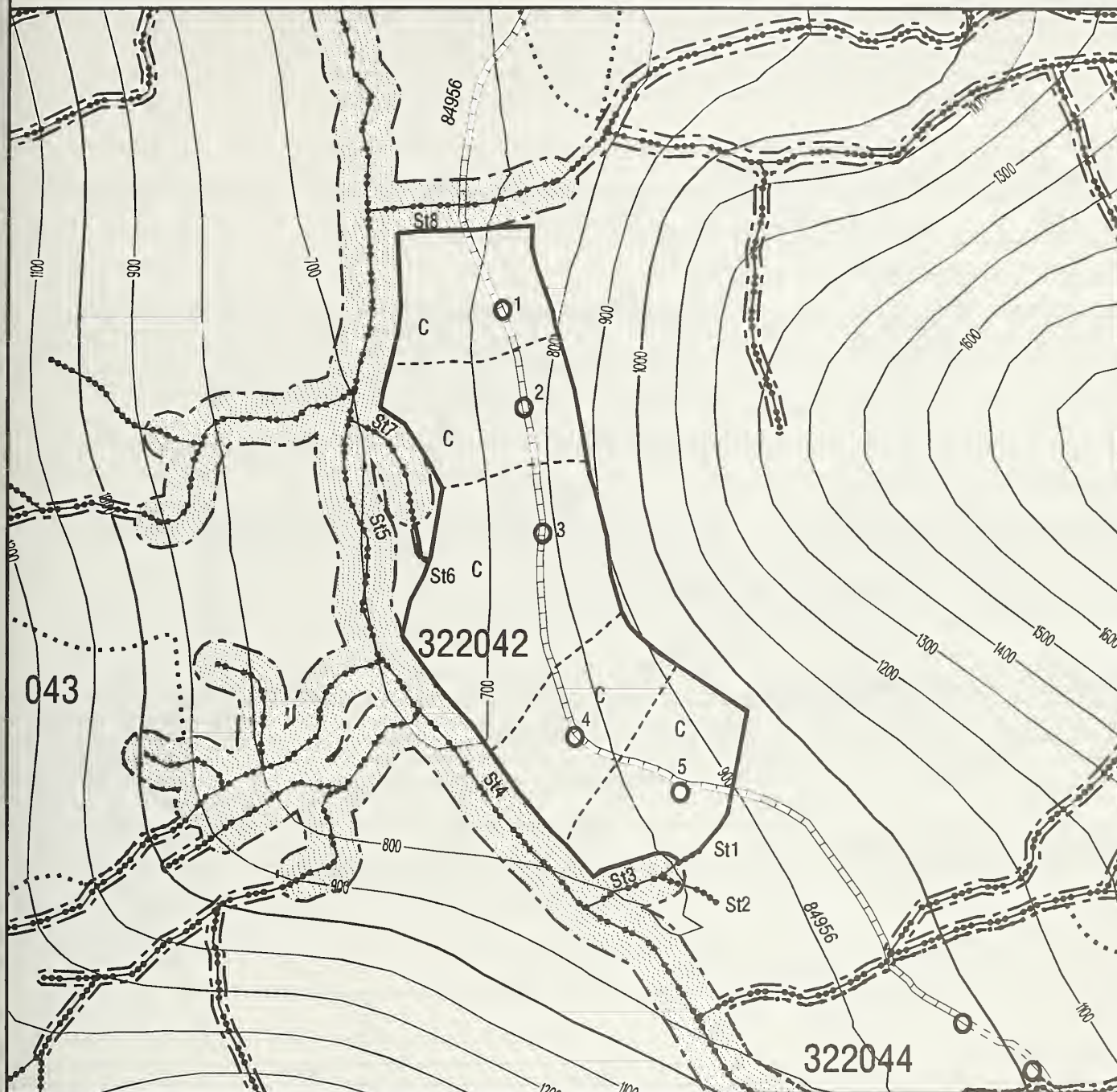


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 120 VCU: 82 UNIT: 322042 ALTERNATIVE(S): 2 4 7

ACRES: 50.25 TOTAL NET MBF: 1053.2 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 138



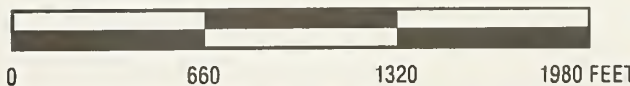
EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322043

MAP #: 127

## STAND CHARACTERISTICS

Mosaic/ two-storied stand in the w. hemlock series. This stand also has Sitka spruce and Y. cedar in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 10 to 65% on aspects from NE to E. The eastern portion of the unit is bounded by a low site area and a class II stream buffer. Trees are 250 to 350 years old with moderate to high defect and significant amounts of conk, light mistletoe, mechanical/animal damage, defoliators, and pockets of windthrow. The understory is 20-40% stocked with 20 to 50 year old w. hemlock which occur in groups throughout with fair to good vigor. Ground cover is sparse to dense Vaccinium associated with devils club and shield fern. Significant new windthrow found in pockets on upper slopes. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Boundaries modified to exclude low site and buffers and include areas to edge of class 4 soils. Helicopter yard to landing at unit 322042. BMP 13.9.

**Visual Resource Management:** VQO Maximum Modification. Should meet VQO. Unit conforms well to topography.

**Soils / Geology:** No concerns noted. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 2, 3, 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 3a, 4, 5, 6a (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Habitat suitable for red-breasted sapsucker, black bear. Recommend leaving reserve live trees and snags to maintain habitat density. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 5 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns with shelterwood method on the upper slopes.
- (4) Retain amounts of green cull or high defect trees for vertical stand structure and cavity nesting habitat.
- (5) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcutting was selected because: (1) Provides full volume return from a stand that is past its peak productivity. (2) Standing cull trees are reserved to provide vertical structure/habitat/ecological and soil functions. Leaving of cull trees will also add to the economics of the unit since very high cost helicopter will be employed. Clearcut with reserves and shelterwood with reserves would be poorer choices economically and operationally. Blowdown of cull trees will provide mineral soil for germination of S. spruce and y. cedar trees; otherwise, the lack of site prep. in helicopter logging would tend to convert the stand to hemlock. Group selection would not provide vertical structure within stand, and would be in jeopardy of edge raveling and excessive windthrow. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Bounded on the north, south, east and west by hazard class 4 soils. Bounded to the west by low site and Class III stream buffers.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of some reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Schedule precommercial thinning, if desirable, after inspection at year 15. Favor S. spruce when found. Remove trees with dwarf mistletoe when found.
- (4) Nurse logs- up to 10 cull logs retained per acre.

## MONITORING PLAN

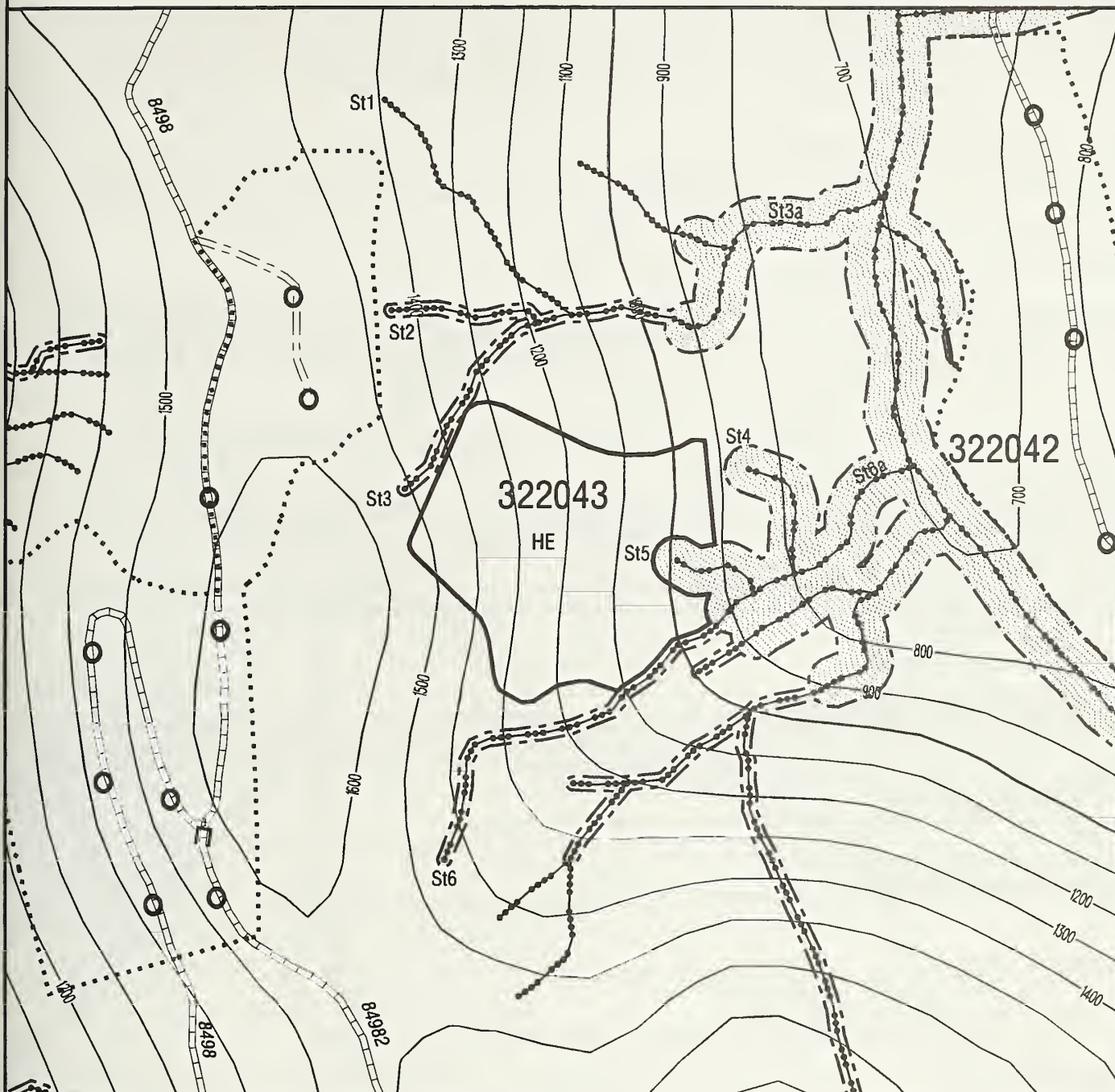
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 127 VCU: 82 UNIT: 322043 ALTERNATIVE(S): 2 4

ACRES: 24.06 TOTAL NET MBF: 744 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 177



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPIARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322044

MAP #: 133

## STAND CHARACTERISTICS

Mosaic of two-storied and even age functional stands in the w. hemlock and Sitka spruce series. There is also significant amounts of Sitka spruce in the overstory. The stand is composed of large, high quality sawtimber with significant amounts of utility pulp. Slopes range from 10 to 70% on aspects from SW to W which are bisected by a number of small creeks and debris chutes. The southwestern portion of the unit is bounded by a class II buffer on the main creek. Overstory ages are 200 to 400 years old with moderate to high defect and significant amounts of conk, mechanical/animal damage and some windthrow on upper slopes. The understory is <20% - 40% stocked with 20 to 40 year old w. hemlock and Sitka spruce which occur in groups throughout with poor to good vigor. Ground cover is sparse to moderately dense Vaccinium associated with devils club, skunk cabbage, salmonberry and shield fern. Site is very good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Slackline system with 90 foot tower. Rigging across SE Class II (stream #6) buffer is required. All settings- directionally felled away from the slide chutes bisecting the unit. Split yard away from chutes. Unit reconfigured to avoid class 4 soils. Not suitable for partial cut. Snag retention constitutes a hazard. BMP 13.9.

**Visual Resource Management:** Not seen.

**Soils / Geology:** No concerns listed. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 1-5 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 6 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Habitat suitable for hairy woodpecker, brown creeper and black bear. Recommend leaving reserve trees and snags to maintain habitat density. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert partially understocked stand, volume class 6 with diseased, mature overstory to a vigorous young stand with remnant biological structure.
- (2) Provide for programmed timber yield.
- (3) Mitigation of wildlife concerns by retention between settings lower slopes.
- (4) Retain minor amounts of green cull or high defect trees, Sitka spruce along the southwest line, between settings, for vertical stand structure and cavity nesting habitat. This retention should be compatible with logging systems. Retain some snags in these locations if available and deemed safe for logging crews.
- (5) Maintain fish habitat adjacent to unit.
- (6) One end suspension.
- (7) Minimize sediment yield to fish-bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcut with reserves** was selected because: (1) Provides a high volume return from a stand that is past its peak productivity. (2) Reserve some individual trees (green cull, high defect or Sitka spruce) on lower slopes along the west line, between settings and below the 84956 road. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure and provide Sitka spruce seed source. Individual reserves should be green culls or less common Sitka spruce and y. cedar when found. Retention by scalloping the lower portion of the setting boundaries will assist in the stabilization of these areas. Shelterwood not feasible with logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The majority of the unit was bounded by class 4 soils and alder brush fields. The south and southwest boundary is a Class II stream buffer.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of some reserve trees.
- (2) Remove reproduction that is infected with dwarf mistletoe at harvest.
- (3) Seed Sitka alder in debris chute areas and interplant Sitka Spruce.
- (4) Schedule precommercial thinning. Favor S. spruce when found. Remove trees with dwarf mistletoe when found.

## MONITORING PLAN

Year	Activity	Standard	Who
3	Stocking survey & reserve tree assessment.	>300TPA	Silviculturist
5	Stocking survey and certification	>300TPA; crown closure	Silviculturist
15	Precommercial Thin Survey	200TPA free to grow	Silviculturist
16-25	Schedule and certify Precommercial thinning	> 200TPA incl. >35 TPA of SS	Silviculturist

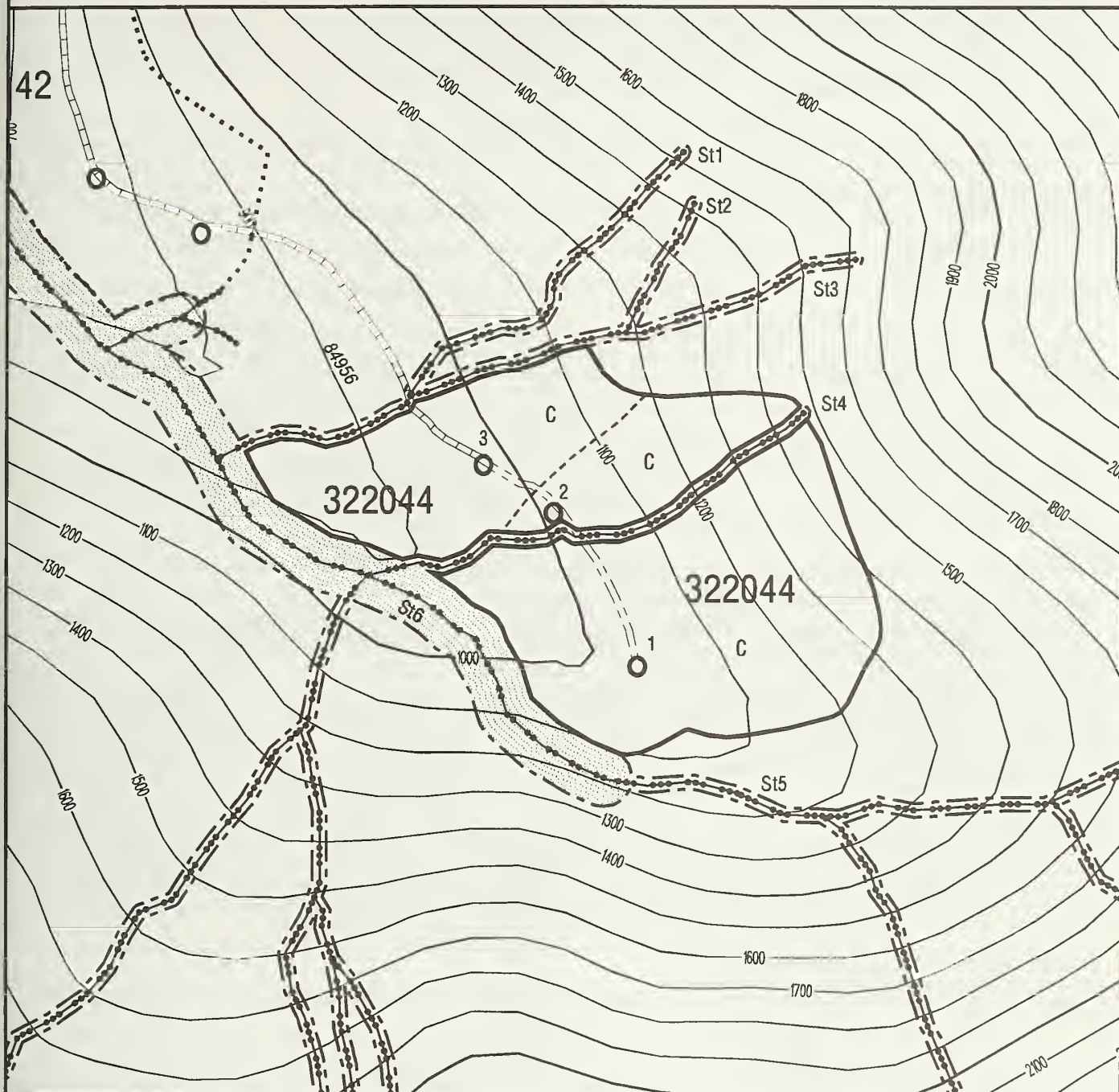


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 133 VCU: 82 UNIT: 322044 ALTERNATIVE(S): 2 4 7

ACRES: 58.54 TOTAL NET MBF: 1916.1 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 137



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

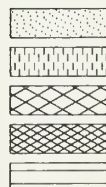
HE = HELICOPTER  
SV = SHOVEL  
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

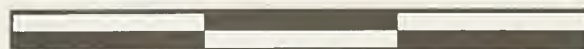
LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0

660

1320

1980 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## I. UNIT IDENTIFICATION

UNIT #: 331045

MAP: 62

## STAND CHARACTERISTICS

Low elevation stand of medium sawtimber in the western hemlock and Sitka spruce series with moderate to high defect in VC 6 and VC 5. Sitka spruce is relatively abundant. Stand structure is a mosaic of two-storied, unevenaged, and functionally even-aged with poor to fair distribution and vigor of understory and advanced regeneration. Slopes are moderately steep. Two Class III streams bisect the stand and a Class II stream is buffered to the west. Understory is moderate to heavy blueberry with much devil's club and skunk cabbage on the lower slopes. Regeneration potential and potential productivity is high except for low and fair in the VC 4. Mistletoe is present. Good spruce site. Subsistence use, and mistletoe infection are management concerns.

Mass failure risk is rated high for the volume class 6 portions of the unit (settings 3 & 4) which lie in the maximum modification VAC/VQO are prescribed for clearcutting (settings 3 and 4 are prescribed to retain 8-10 trees/acre). The lower volume class areas (settings 1 and 2), where mass failure risk is rated low, are prescribed to retain 15-20 evenly spaced trees per acre 18 in. dbh and larger. Leave tree retention is nonexistent or minimal where mass failure risk is rated highest.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Unit designed for a running skyline swing yarder. (2) Heavy partial harvest feasible. 450 feet of temporary roads needed.

**Visual Resource Management:** VQO: Maximum Modification; VAC: Moderate. (2) Very visual sensitivity as middleground and background view from small boat route.

**Soils / Geology:** Soils review needed at layout to adjust backline. Recommend deleting portion of unit between Streams 1 and 3 due to unstable soil above and wetland at the bottom near landing 6. BMP 13.2, 13.5 and 12.5 applicable.

**Fisheries / Watershed:** (1) Stream 1, 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 2, 2a, 4, 4a, 5, 5a, 6, 6a, 7, 7a, 8, 8a, 9, 9a, 10, 10a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 11 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 12 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 13 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** (1) Recommend retention of green trees and snags for vertical habitat structure and other wildlife values. (2) red breasted sapsucker habitat.

**Cultural / Recreation / Subsistence:** Unit is sensitive for recreation and subsistence use.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of middleground and background visual impact.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Minimize impact to recreation and subsistence uses.
- (7) Provide operational demonstrations of adaptive management trials.
- (8) Provide a programmed timber yield.
- (9) One end suspension/full suspension.

## RATIONALE FOR ALTERNATIVE SELECTION

Selected systems are clearcut, clearcut with reserves, and shelterwood with reserves. The array of evenaged regeneration methods is the recommended alternative because it fits the landscape well, mitigates visual impact, and provides an adaptive management trial of regeneration methods. Reserve trees utilized in the selected alternatives will provide wildlife habitat as well as a source of blowdown for ecological functioning. Other Alternatives: Selection and sanitation salvage are of marginal economics and logging feasibility. The evenaged methods will provide a higher timber yield and better conditions for regeneration and growth. Defer treatment would not provide a timber yield from a unit with relatively high timber value and would not regenerate a stand with high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The southwest boundary follows a Class II floodplain channel type stream buffer, except for the bottom of settings 4 where there is low site forest / muskeg between the unit and the stream.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance and blowdown of leave trees  
Plant SS and YC to improve productivity.  
Schedule PCT and favor SS and YC(when occurs)

## MONITORING PLAN


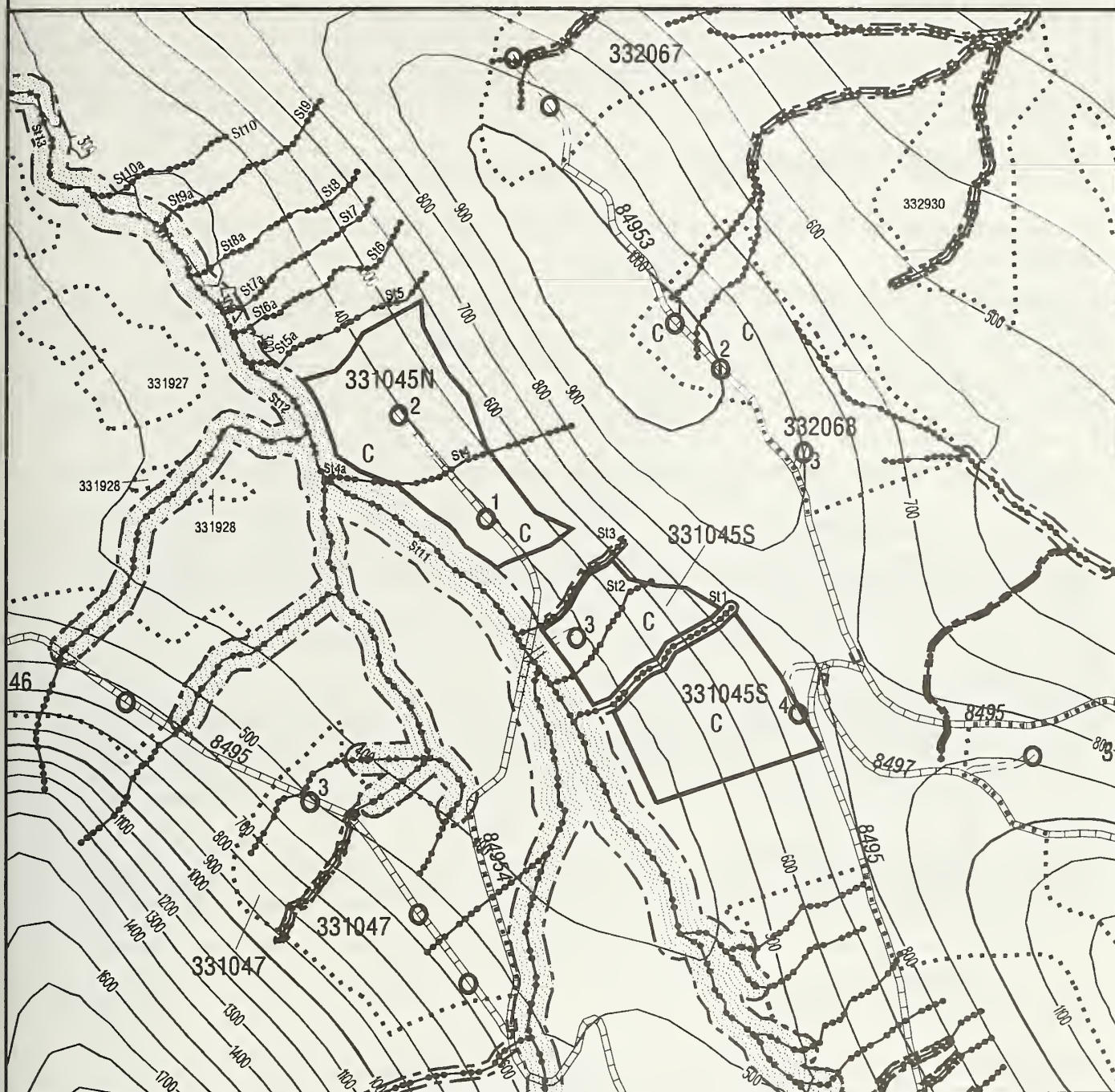
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 62 VCU: 83 UNIT: 331045 ALTERNATIVE(S): 2 4 7

ACRES: 53.75 TOTAL NET MBF: 1621.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 149



EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED TEMP ROAD  
 UNIT BOUNDARY  
 ADJACENT UNIT  
 SETTING BOUNDARY  
 CONTOUR LINE  
 OWNERSHIP BOUNDARY  
 RIPARIAN MGMT AREA  
 CLASS 1 STREAM  
 CLASS 2 STREAM  
 CLASS 3 STREAM  
 CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL






C = CABLE

St1 STREAM ID IN NARRATIVE

**L ROAD BEGINS**

**O<sup>1</sup> LANDING & NUMBER**

★ EAGLE TREE

 STREAM TTRA BUFFER  
 BEACH/ESTUARY BUFFER  
 SEAWATER  
 LAKE  
 LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:12000 1 INCH = 1000 FEET



0 1000 2000 3000 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## I. UNIT IDENTIFICATION

UNIT #: 331046

MAP: 82

## STAND CHARACTERISTICS

Low elevation stand of medium sawtimber in the western hemlock and mixed conifer series. The VC 4 mixed conifer and poorly drained western hemlock is located on the lower slope with VC 6 western hemlock with scattered large Sitka spruce emergents is on the moderately well drained upper slope. Defect is moderate to high. Stand structure is mostly functionally evenaged with a mosaic of younger age classes and regeneration in gaps in the VC 4. Understory is moderate dense blueberry with devil's club in VC 6 and dense blueberry with skunk cabbage in VC 4. Unit is located on a debris fan from oversteepened terrain upslope and large muskeg downslope. One Class II/IV stream bisects the stand south to north and a Class I stream is located about 250 ft west. Advanced regeneration is poor to good but occupies no more than 20% of the stand. Overstory age is estimated to be in excess of 400 yrs. Potential productivity is high to fair and regeneration potential is high to fair along the same gradient from well drained upper slopes to the muskeg fringe.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems** (1) Running skyline required by unit design. (2) Heavy partial harvest is feasible. (3) Tail trees required. (4) Tailholds external to unit.

**Visual Resource Management** VQO: Maximum Modification, VAC: Moderate. (2) Very visually sensitive as seen in middleground and background from visual priority travel route.

**Soils / Geology:** No concerns.

**Fisheries / Watershed** (1) Stream 1a, 1b, 2a, 3a, 3b - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 1, 2, 3, 5 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 4 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b.

**Wildlife:** (1) Recommend retention of green trees and snags for vertical habitat structure and other wildlife values. (2) red breasted sapsucker habitat. (2) Red breasted sapsucker habitat.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of middleground and background visual impact.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Minimize sediment yield to fish bearing streams.
- (6) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the recommended alternative because it is the most feasible and efficient method to harvest and regenerate the stand and mitigate visual, wildlife, and watershed impacts as designed. A heavy partial harvest is feasible with minor impact to logging costs and yield. Reserves will provide wildlife habitat as well as a source of blowdown for ecological functioning. Regeneration and subsequent growth will be near that of a clearcut. Clearcut and clearcut with reserves would not provide as much mitigation of visual impacts, ecological/soil function or structural diversity. Logging feasibility, regeneration, and future productivity do not indicate intermediate or unevenage silviculture methods. Defer treatment would not provide a timber yield nor regenerate a stand with moderate to high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The north boundary follows the type change to a muskeg fringe. The west boundary leaves approx. a 250 ft buffer on the Class 1 stream course (a portion of the paper plan unit was deleted in this area). The south boundary is a yarding boundary at the base of over steepened (>70%) terrain. The southeast boundary is a logical setting boundary that leaves a logical future unit between 331046 and 331047.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance and blowdown of leave trees.  
Plant SS to improve productivity.  
Schedule PCT and favor SS and YC (where occurs)

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

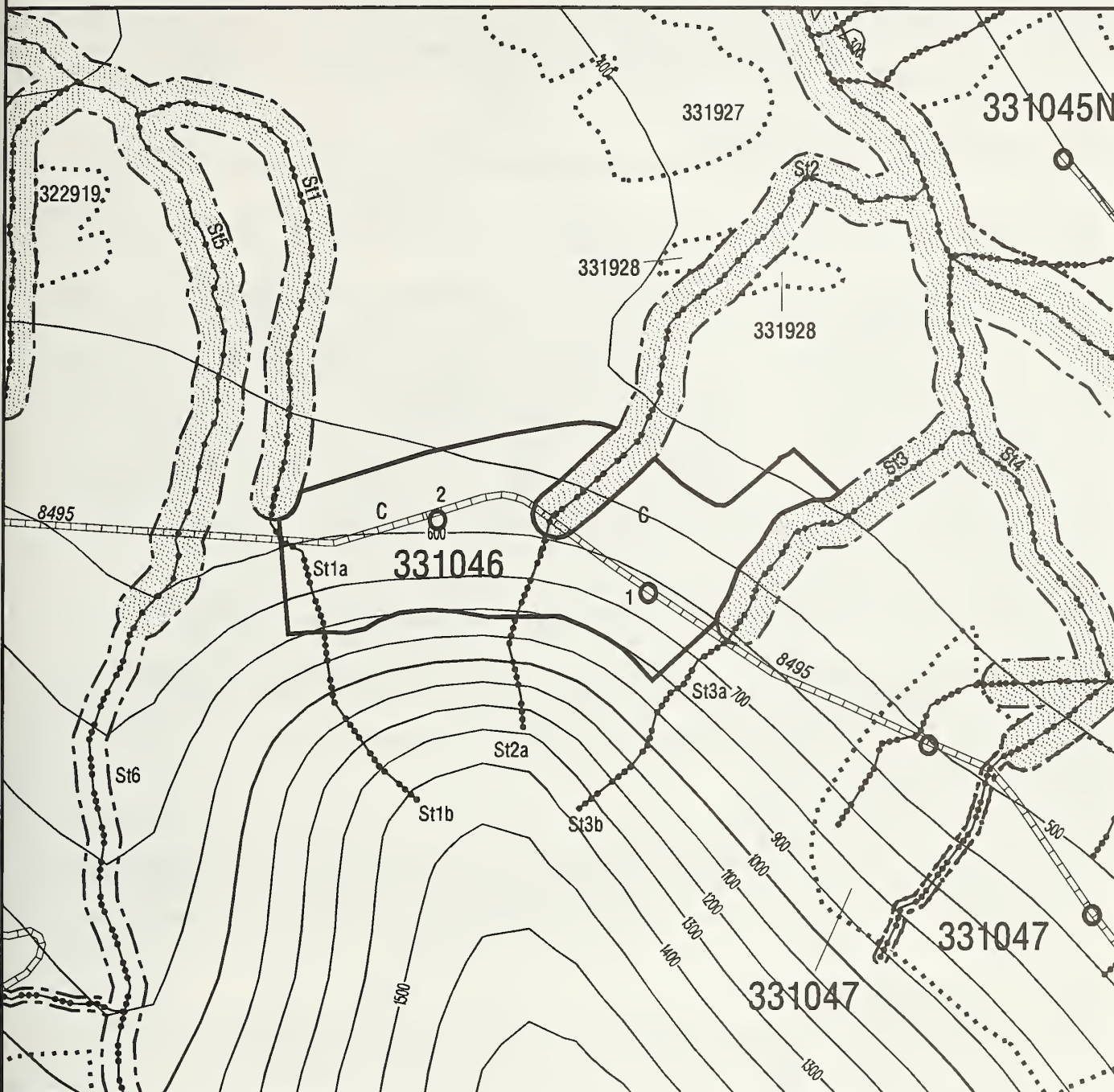


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 82 VCU: 83 UNIT: 331046 ALTERNATIVE(S): 2 4 7

ACRES: 31.47 TOTAL NET MBF: 649.4 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 140



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## I. UNIT IDENTIFICATION

UNIT #: 331047

MAP: 86

## STAND CHARACTERISTICS

Mid to low elevation stand of medium to large sawtimber mostly in the western hemlock series with moderate to high defect. Scattered large and high quality Sitka spruce are present. There is mixed conifer and WH-YC series in the lower unit where the slope flattens and drainage is restricted. Stand structure is functionally even-aged with poor to fair distribution and vigor of understory and advanced regeneration. Slopes are moderate to moderately steep with the toe of a debris torrent from hazard class IV soils upslope crossing the southeast extent of the unit. One Class III stream bisects the stand and a Class II stream is buffered to the east. Understory is open blueberry with devil's club and some skunk cabbage in the VC 5 and VC 6 with dense blueberry and abundant skunk cabbage in the VC 4. Regeneration potential and potential productivity is high except for low and fair in the VC 4.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Large slackline required. (2) Partial harvest not feasible because of downhill yarding. (3) Tail trees required.

**Visual Resource Management:** VQO: Maximum Modification; VAC: Moderate. (2) Some visual sensitivity as top of unit viewed in background from visual priority travel route.

**Soils / Geology:** Hazard Class 4 soils and wetlands area deleted. BMPs 12.5, 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 2, 11 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 1, 3, 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 4, 5, 6 (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 8, 9 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 10 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (6) Stream 12 (AF) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area. The RMA is the greater of the active portion of the alluvial fan or 140 feet from the current channel(s). Manage across the remainder of the fan (no more than 10% of the fan timber harvested in a 30-year period) with the objective of leaving large trees within the stand for future recruitment to stream channels. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (7) Stream 4, 6 - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990.

**Cultural / Recreation / Subsistence:** Unit is sensitive for recreation and subsistence use.

**Wildlife:** (1) Recommend retention of green trees and snags for vertical habitat structure and other wildlife values. (2) red breasted sapsucker habitat.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of an overmature stand with a decadent overstory and poor understory.
- (2) Improve timber volume and value productivity.
- (3) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (4) Minimize sediment yield to fish bearing streams.
- (5) Exclude Hazard Class IV soils from the timber base.
- (6) Provide a programmed timber yield.
- (7) One end suspension, to protect soils.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the recommended alternative because it is the most feasible and efficient method to harvest and regenerate the stand. Logging feasibility is poor for a partial harvest. Regeneration and subsequent growth will be at an optimum with a clearcut vis-a-vis other evenaged methods. Even with clearcutting, some reserve trees will be retained to provide wildlife habitat as well as a source of blowdown for ecological functioning. Stand structure and logging feasibility do not indicate intermediate or unevenage silviculture methods. Defer treatment would not provide a timber yield from a unit with relatively high timber value and would not regenerate a stand with high potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The south boundary follows a debris torrent from oversteepened upper slopes. The southwest boundary is the break into steep Hazard Class IV soils. The northwest boundary is located to leave a logical future unit between 331047 and 331046. The northeast and southeast boundaries are Class II stream buffers.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance.  
Plant SS to improve productivity.  
Schedule PCT and favor SS and YC (where occurs)

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

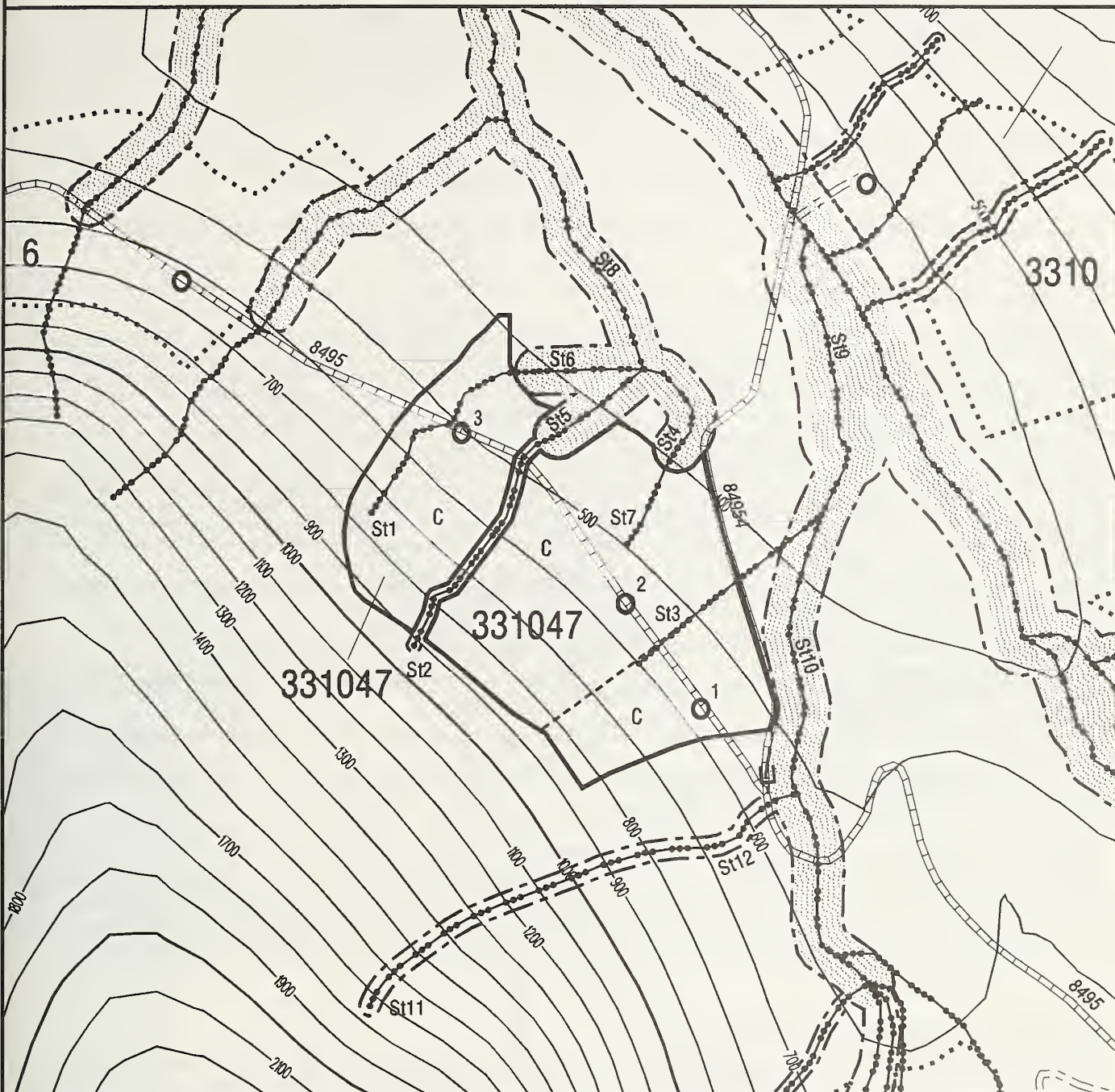


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 86 VCU: 83 UNIT: 331047 ALTERNATIVE(S): 2 4 7

ACRES: 44.34 TOTAL NET MBF: 1175.4 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 26 ROLL NO.: 888 PRINT NO.: 171



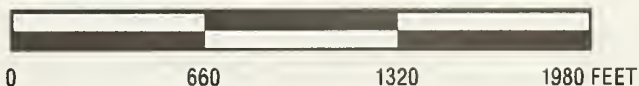
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## I. UNIT IDENTIFICATION

UNIT #: 331048

MAP: 92

## STAND CHARACTERISTICS

Generally mosaic and multiple storied stands in the w. hemlock, w. hemlock/y. cedar and mixed conifer series. These stands include Sitka spruce and Mt. Hemlock in the overstory. The stand is composed of medium to large size, moderate quality sawtimber with significant amounts of utility pulp. Slopes on aspects from SW to W slopes. The unit is adjacent to ridgetop lowsite/muskeg to the east and class II stream buffer to the west. Overstory ages are 250 to 300 years old with moderate defect and significant amounts of conk, mechanical/animal damage, defoliators, and scattered windthrow. The understory is typically <21%-40 stocked with 20 to 40 year old w. hemlock which occur in groups throughout with fair vigor. Ground cover is moderate to dense Vaccinium associated with skunk cabbage, devils club and shield fern. Site is fair to good over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Eleven settings along two roads. Landings 4,5,&6 designed for running skyline; remainder are small slackline. Tail trees required in the SE unit corner to provide lift over sharp draws. Snag retention creates safety hazard. Skyline extensions through fish buffer may be needed.

**Visual Resource Management:** VQO Maximum Modification. Viewed from the visual priority travel route in background. This unit meets VQO. Scallop top at settings.

**Soils / Geology:** No concerns listed on post field. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1, 2, 3, 4, 5a, 6a, 7a, 8a, 9, 10b - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 5b, 6b, 7b, 10 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 8b - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (4) Stream 1a, 2a, 3a, 4a, 5c, 6c, 7c, 8c, 10a, 11 (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 12 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (6) Stream 13 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Survey for northern goshawk- No response. Black Bear observed. Survey for marbled murrelet- low density. Sitka black tailed deer tracks and pellet group observed. Recommend leaving reserve trees and snags for habitat structure.

**Cultural / Recreation / Subsistence:** No concerns on post field comments. However rated for subsistence and recreation use on quick list.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of partially understocked stand, volume class 5, 6 & 7 with diseased, mature overstory.
- (2) Volume for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention at class II streams and buffering the class III V-notches. Rounding of unit corners and minor retention on the upper slopes.
- (4) Retain minor amounts of green cull or high defect trees in the areas adjacent to class II streams for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) Maintain fisheries habitat in adjacent streams. One-end or full suspension for streams.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) Provides a reasonably high volume return from a stand that is past its peak productivity. (2) Reserves individual trees to provide ecological functions, wildlife habitats, and visual quality. Systems to provide good phenotypic trees for vertical and cavity nesting habitat structure, softening of visual impacts, and source of blowdown for ecological functioning. Reserves should be green culls or less common species such as Sitka spruce or yellow cedar, when found. Retention of trees and groups of trees between settings will retain about 3 to 4 acres of timber on the upper slopes of the unit above the road and along the deep class III V-notch. Also during final layout round the corners of the unit on the upper slopes. In conjunction with that buffer feather the edges around the adjacent small muskeg that has been excluded from the unit.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east and the west boundaries are determined by logical logging limits. The east boundary is adjacent to an old windthrow area. Setting boundaries will be adjusted during final layout to achieve split yarding on all streams where it is feasible. Some sideblocking will be necessary to achieve this. Streams that cannot be split-yarded will have partial suspension.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees.
- (2) Retain patches of trees on upper slopes in scalloped areas between settings, retain Sitka spruce in these areas as much as possible.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

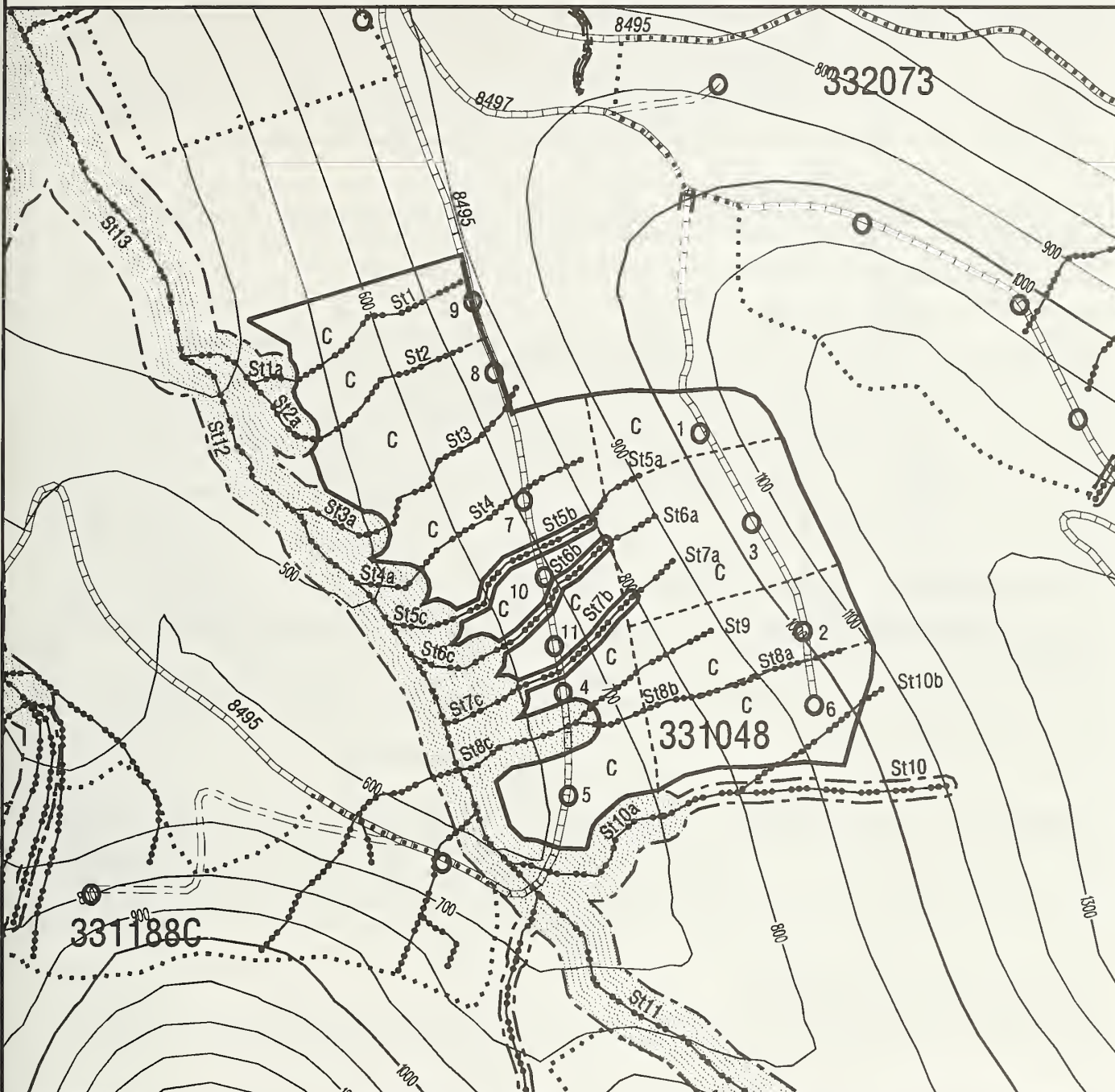


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 92 VCU: 83 UNIT: 331048 ALTERNATIVE(S): 7

ACRES: 68.81 TOTAL NET MBF: 1869.3 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 149



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## I. UNIT IDENTIFICATION

UNIT #: 331049

MAP: 112

## STAND CHARACTERISTICS

Generally mosaic Even age functional stands in the w. hemlock, w. hemlock/y. cedar and mixed conifer series. These stands include Sitka spruce and Mt. Hemlock in the overstory. The stand is composed of medium to large size, moderate quality sawtimber with significant amounts of utility pulp. Slopes range from 20 to 70% on aspects from SW to NE slopes. The unit is comprised of four settings, two on the west side of the ridge and two on the east side of the ridge. The unit is adjacent to ridgetop lowsite/muskeg which lies on the ridge between the east and west settings. Overstory ages are 250 to 300 years old with moderate defect and significant amounts of conk, mechanical/animal damage, defoliators, and scattered windthrow. The understory is typically 20% stocked with 20 to 40 year old w. hemlock which occur in groups throughout with fair vigor. Ground cover is moderate to dense Vaccinium associated with rusty menziesia, skunk cabbage, deer cabbage and shield fern. Site is fair to good over the unit as a whole. A slide exists between the setting on the east portion of the unit, roads have been reconfigured to avoid this area. Some microsites on the western settings in volume class 4 & 5 are low site with deer cabbage as an indicator, however the area as a whole is suitable for timber production.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Small slackline system is recommended. Roads can be extended for future settings. 1600 feet of temporary roads needed. Rooding configuration minimizes logging impacts on ridgetop muskegs and wildlife corridors. Snags retention creates safety hazard.

**Visual Resource Management:** VQO Maximum Modification. Seen from the visual priority travel route in background.

**Soils / Geology:** No concerns. BMP 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1, 5, 6, 13, 14, 15 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 9 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Stream 2, 3, 4, 7, 8, 10, 11, 12 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (4) Stream 17 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 16 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** No concerns.

**Cultural / Recreation / Subsistence:** No concerns on post field comments.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of partially understocked stand, volume class 4, 5 & 6 with diseased, mature overstory.
- (2) Volume for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention at class II streams.
- (4) Retain minor amounts of green cull or high defect trees in the areas adjacent to slide for stability and for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) Maintain fisheries habitat in adjacent streams.
- (6) Split yard away from slide area in east settings.
- (7) Minimize sediment to fish streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system and not reasonable due to infestation of dwarf mistletoe. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand. Reserve trees in settings 1 and 2 will be windfirm, consisting of primarily small diameter, non-merchantable trees with short, open crowns, and trees with evidence of an open-grown history.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Northern portion of the unit is bounded by reserve settings. The southern boundary adjoins muskeg and low site areas. The unit is almost split into two pieces by a ridgetop muskeg. The east and the west boundaries are determined by logical logging limits and a class II buffer to the SW. A Class III v-notch divides the unit in the eastern portion.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees. This will break the pit and mound microtopography in the west settings.
- (2) Retain patches of trees on upper slopes in scalloped areas between settings, retain Sitka spruce in these areas as much as possible.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

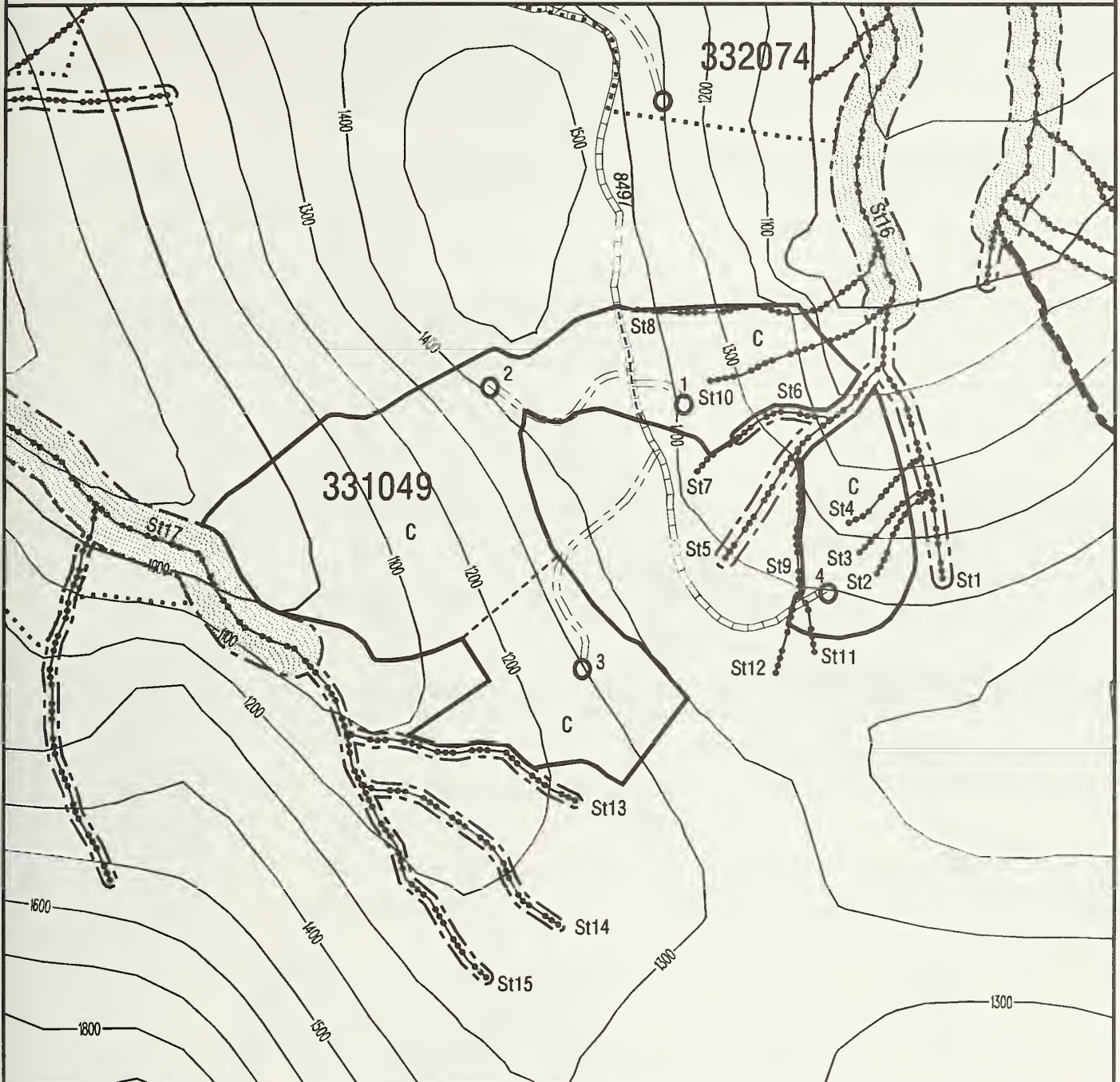


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 112 VCU: 83 UNIT: 331049 ALTERNATIVE(S): 2 4 6

ACRES: 61.43 TOTAL NET MBF: 1617.7 QUAD(S): SUMA5 QUARTER QUAD(S): NE

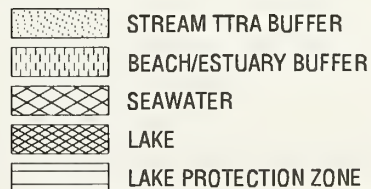
PHOTO INFO: YEAR: 1989 FLIGHT LINE: 27 ROLL NO.: 888 PRINT NO.: 150



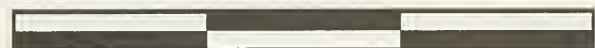
EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE



CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

L. UNIT IDENTIFICATION

UNIT #: 331187

MAP: 113

## STAND CHARACTERISTICS

Uneven age stand in the w. hemlock and Sitka spruce series. This stand include y. cedar and Mt. Hemlock in the overstory. The stand is composed of medium to large size, high quality sawtimber with significant amounts of utility pulp. Slopes range from 20 to 70% on aspects from N to NE slopes. The unit is comprised of one helicopter setting. The unit is adjacent to a class II stream buffer and bisected by one small Class III V- notch creek. Overstory ages are 250 to 400 years old with moderate defect and significant amounts of conk, mechanical/animal damage, defoliators, and scattered windthrow. The understory is typically 20% stocked with 20 to 40 year old w. hemlock which occur in groups throughout with fair vigor. Ground cover is moderate to dense Vaccinium associated with skunk cabbage, devils club and shield fern. Site is good over the unit as a whole. This uneven age stand lends itself to overstory removal or other uneven age management systems.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Unit will be helicopter yarded, using landing #1 Unit 331188. Directionally fell timber away from Class II and III stream. Unit is flagged as 333187 in the field. Snag retention creates safety hazard. Unit is suitable for partial cut. BMP 13.9 applicable.

**Visual Resource Management:** VQO: Maximum Modification.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 4 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 1-3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b.

**Wildlife:** Leave trees and snags for habitat.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Open stand in volume class 6 with partially diseased, mature overstory.
- (2) Moderate volume for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns with selective harvest methods.
- (4) Retain major portion of stand for vertical stand structure and cavity nesting habitat.
- (5) Maintain fisheries habitat in adjacent streams with retention in the entire unit as well as along stream buffers and sensitive areas..
- (6) Soften visual impacts with retention/partial harvest.
- (7) Directional fell away from buffers.

## RATIONALE FOR ALTERNATIVE SELECTION

Overstory Removal: Suited for uneven age stands in volume class 6. Also remove minor amounts of understory with mechanical or animal damage. This harvest method is possible with helicopter yarding system and the existing stand structure in this unit. Defer would not capture volume from a stand in transition.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit is bounded on the NE by a Class II stream buffer and bounded on the SW by sensitive soils areas upslope.

### Forest Productivity Activities:

- (1) Release existing understory and maintain a significant amount of overstory. Retain green cull and snags if safe for work crews.
- (2) Retain a proportional amount of Sitka spruce and y. cedar in the unit.
- (3) Schedule salvage operations in the future as needed. Favor retention of S. spruce and y. cedar when found. Remove trees with dwarf mistletoe if found.

## MONITORING PLAN

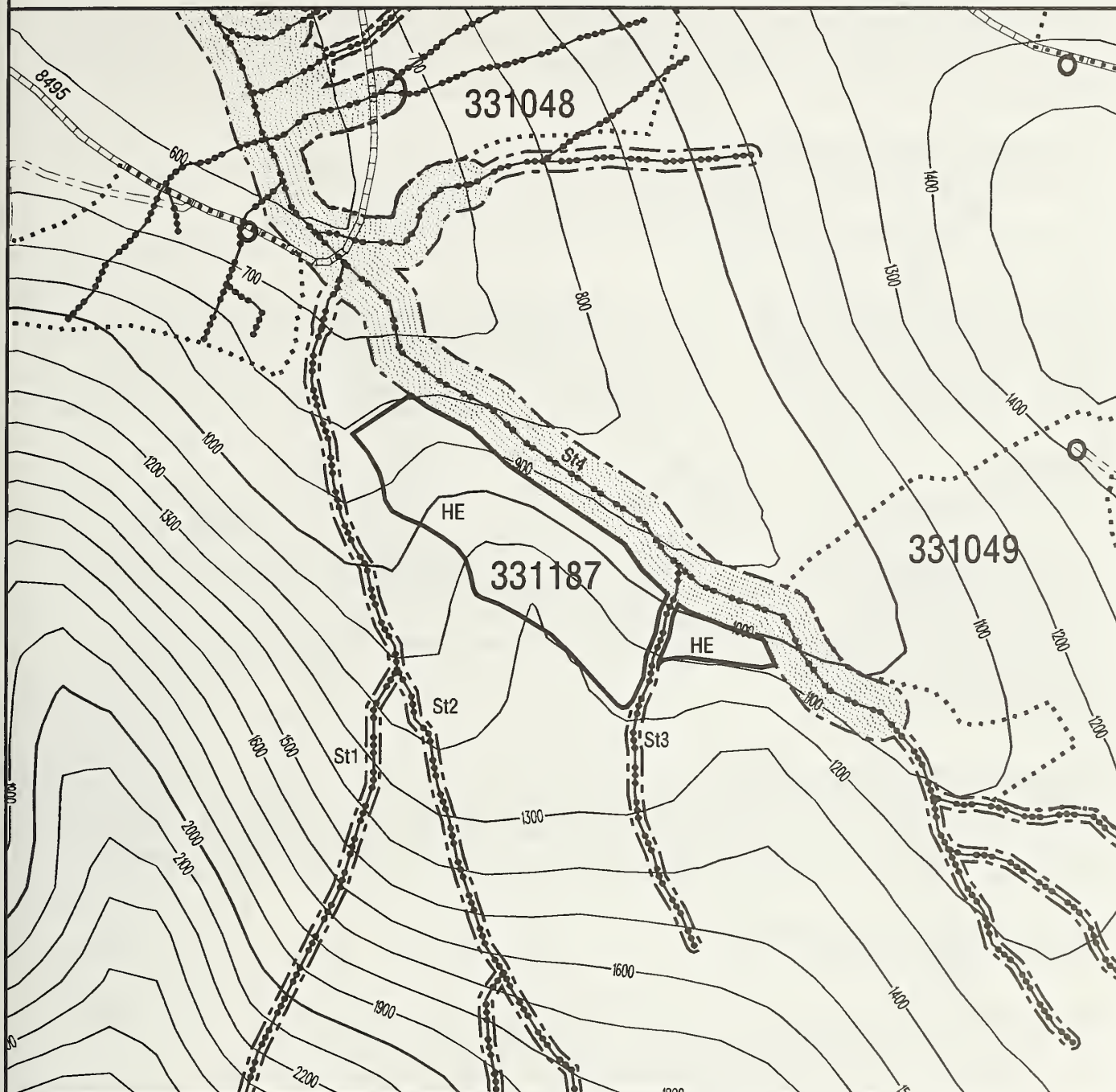
Date	Activity	Standard	Who
3	Reserve tree/stand exam	Stand health ck for windthrow	Silviculturist
5	Stocking exam and Certification	Check for windthrow	Silviculturist
15	Stand exam	Look for salvage/ sanitation opportunities.	Silviculturist
16 TO 25	Schedule next harvest if needed	Remove salvage/sanitation trees.	Silviculturist



MAP NO.: 113 VCU: 83 UNIT: 331187 ALTERNATIVE(S): 2 4

ACRES: 17.39 TOTAL NET MBF: 233.9 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 150



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## I. UNIT IDENTIFICATION

UNIT #: 331188

MAP: 105

## STAND CHARACTERISTICS

Uneven age stand in the w. hemlock and Sitka spruce series. This stand include y. cedar and Mt. Hemlock in the overstory. The stand is composed of medium to large size, high quality sawtimber with significant amounts of utility pulp. Slopes range from 20 to 70% on aspects from N to NE slopes. The unit is adjacent to a class II stream buffer. Overstory ages are 250 to 400 years old with moderate defect and significant amounts of conk, mechanical/animal damage, defoliators, and scattered windthrow. The understory is typically 20% stocked with 20 to 40 year old w. hemlock which occur in groups throughout with fair vigor. Ground cover is moderate to dense Vaccinium associated with skunk cabbage, devils club and shield fern. Site is good over the unit as a whole. This uneven age stand lends itself to overstory removal or other uneven age management systems.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Running skyline recommended for the two settings. Approx. 1500 feet of temp. road constructions needed. Unit flagged 333188 in the field. Unit not suitable for partial cut. Snag retention creates safety hazard. Small helicopter setting in west of unit.

**Visual Resource Management:** VQO Maximum Modification. Seen from the visual priority travel route in background.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 6, 7, 8, 12, 13 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 1-5, 9 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 10 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 11 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Habitat suitable for black bear 1/2 of unit.

**Cultural / Recreation / Subsistence:** No concerns on post field comments.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Regeneration of partially understocked stand, volume class 4, 5 & 6 with diseased, mature overstory.
- (2) Volume for programmed timber yield.
- (3) Mitigation of visual impacts and wildlife concerns by retention at class II streams.
- (4) Retain minor amounts of green cull or high defect trees in the areas adjacent to slide for stability and for vertical stand structure and cavity nesting habitat. This retention must be compatible with logging systems.
- (5) Maintain fisheries habitat in adjacent streams.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

In the north the unit is bounded by muskeg and low volume area. The remaining boundaries are determined by logical yarding limits.

### Forest Productivity Activities:

- (1) Soil mixing and warming from logging disturbances and future blowdown of reserve trees. This will break the pit and mound microtopography in the west settings.
- (2) Retain patches of trees on upper slopes in scalloped areas between settings, retain Sitka spruce in these areas as much as possible.
- (3) Schedule precommercial thinning. Favor S. spruce and y. cedar when found. Remove trees with dwarf mistletoe when found.
- (4) Plant S. spruce after year 3 stocking survey if below 50 TPA- this will distribute in the stand a species which is resistant to dwarf mistletoe.

## MONITORING PLAN

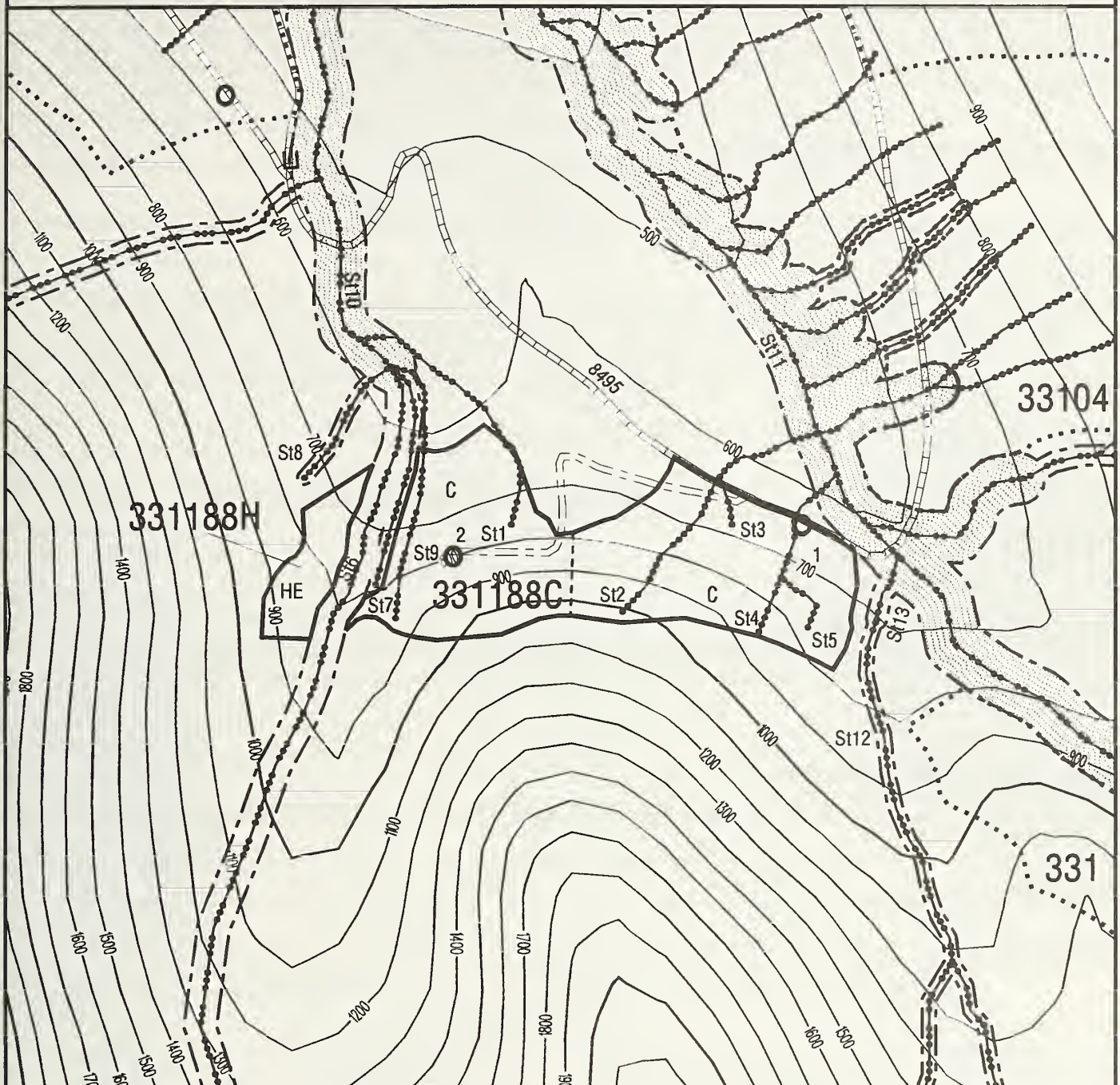
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 105 VCU: 83 UNIT: 331188 ALTERNATIVE(S): 2 4 7

ACRES: 29.44 TOTAL NET MBF: 698.5 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 150



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

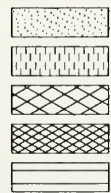
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○ LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332050

MAP #: 33

## STAND CHARACTERISTICS

A small-sized, low elevation stand of western hemlock; 2/3 in VC5 and 1/3 in VC4. Primary plant association is western hemlock/blueberry/shield fern. Minor Stika spruce and yellow cedar component. Medium-to-large sawtimber, with average defect in VC4 and low defect in VC5. Some of the western hemlock is lightly infected with dwarf mistletoe. Stand structure is functionally even-aged, with overstory age of about 350 years. Understory vegetation includes blueberry, shield fern, and skunk cabbage. Upper slopes are well-stocked with good quality advance growth. Slopes are gentle to moderate, and soils are moderately well drained within the unit. However, muskeg and low-site forest bog borders the east side of the unit, limiting access.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Running skyline. Access to the east side of the unit is limited by terrain. The unit is not suitable for partial cutting. The main purpose of the unit is to provide a surface rock source for roads. Accessed by specicified road # 849605.

**Visual Resource Management:** VQO is Partial Retention, viewed in the background from the visual priority travel route. Design unit boundaries and rock pit layout in the field with Landscape Architect to meet Partial Retention VQO.

**Soils / Geology:** No concerns noted.

**Fisheries / Watershed:** (1) Stream 1 (ES) - See Class I overall prescription in the Resource Opportunities and Constraints section of Appendix A. The estuary fringe is an area of approximately 1,000 feet slope distance around all identified estuaries. Estuary fringes are classified as unsuitable for timber harvest. No programmed timber harvest is allowed; however, on a limited basis, unprogrammed timber harvest could be allowed. See TLMP Standards and Guidelines: Beach and Estuary fringe - FS&G's p.4-4 to 4-5. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. (2) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Snags and live reserve trees would provide structural diverse habitat.

**Cultural / Recreation / Subsistence:** No concerns within unit.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut is the selected alternative. The purpose of harvesting timber on this unit is to clear the site for excavation of a rock source for road building. No reasonable alternative is available if the rock source is to be used. Harvesting the timber from the rock source will not directly meet the integrated resource objectives, but it will support the road building and related activities on other units.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundaries have been pulled back from the 1000' beach buffer on the north and the muskeg on the east. Elsewhere they follow logical yarding limits. The boundaries were not selected for silvicultural reasons.

### Forest Productivity Activities:

None. Permanent opening; site conversion.

## MONITORING PLAN

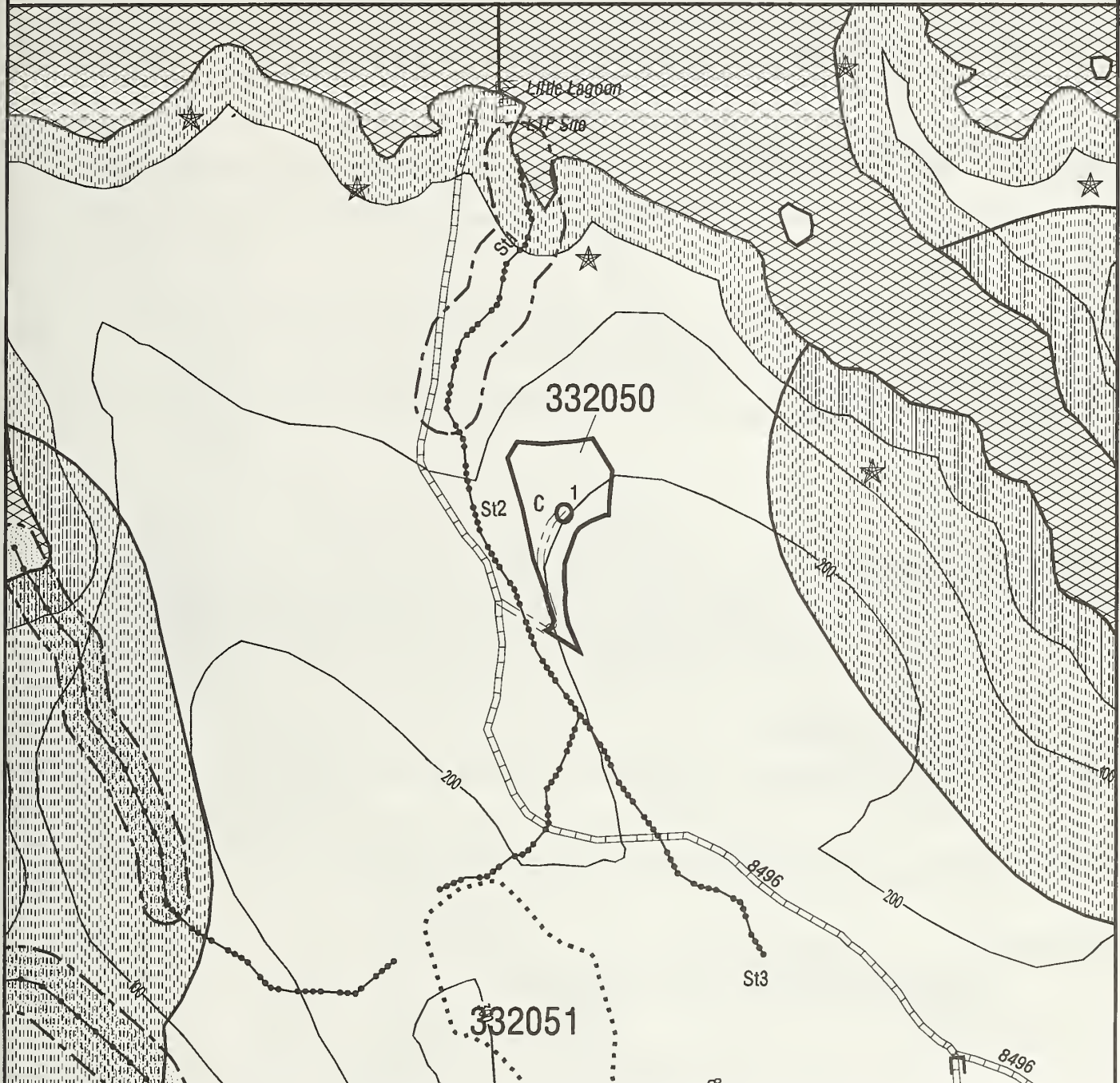
Date	Activity	Standard	Who
Year 1	Ensure that excavations meet safety standards.	From engineering	Sale administrator.



MAP NO.: 33 VCU: 83 UNIT: 332050 ALTERNATIVE(S): 2 4 5 6 7

ACRES: 4.48 TOTAL NET MBF: 98.2 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 163



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

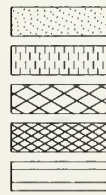
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332051

MAP #: 35

## STAND CHARACTERISTICS

A small, open-canopy, functionally even-aged stand on the NE side of a knob facing a narrow inlet above Port Houghton. Slopes are moderate, averaging about 30%. A Class II/Class III stream borders the stand on the north, and the stand grades into muskeg at its lower limits. Plant association varies between mixed conifer/blueberry and mixed conifer/blueberry/skunk cabbage. Productivity in this 300-year old, medium sawtimber stand is low (VC4), with average defect. Species composition includes yellow cedar, western hemlock, and mountain hemlock. Understory shrub cover is dense on the south, becoming more open in the north. Regeneration stocking is sparse. Cedar decline is prevalent in yellow cedar. Soils appear to be stable.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Running skyline. Area is suitable for heavy partial cut. Short yarding distances with good deflection. Snag retention is a safety issue. Accessed by road #84950.

**Visual Resource Management:** VQO is Partial Retention. Stand is viewed in the background from the visual priority travel route; it is screened in the foreground by buffer trees and unharvested area.

**Soils / Geology:** No concerns noted.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Recommend retaining reserve trees and snags to maintain structural habitats. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns were noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative because: (1) It contributes a high proportion of stand volume to the programmed harvest. (2) Reserve tree selection provides defective hemlock and yellow cedar for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts. Logging systems feasibility is good for a heavy partial cut. Clearcut would provide a somewhat higher timber yield but would not ameliorate the impacts to visual or wildlife habitat resources as well as clearcut with reserves. Shelterwood with reserves, selection, and sanitation salvage are of questionable engineering feasibility without shifting to helicopter yarding, poorer economic choices, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The northern portion of the unit is bounded by the Class IV stream. The east and southeast part of the stand is bounded by muskeg and low-site transition. The remaining boundaries follow the NW-SE ridgeline, conforming to a logical topographic break.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist

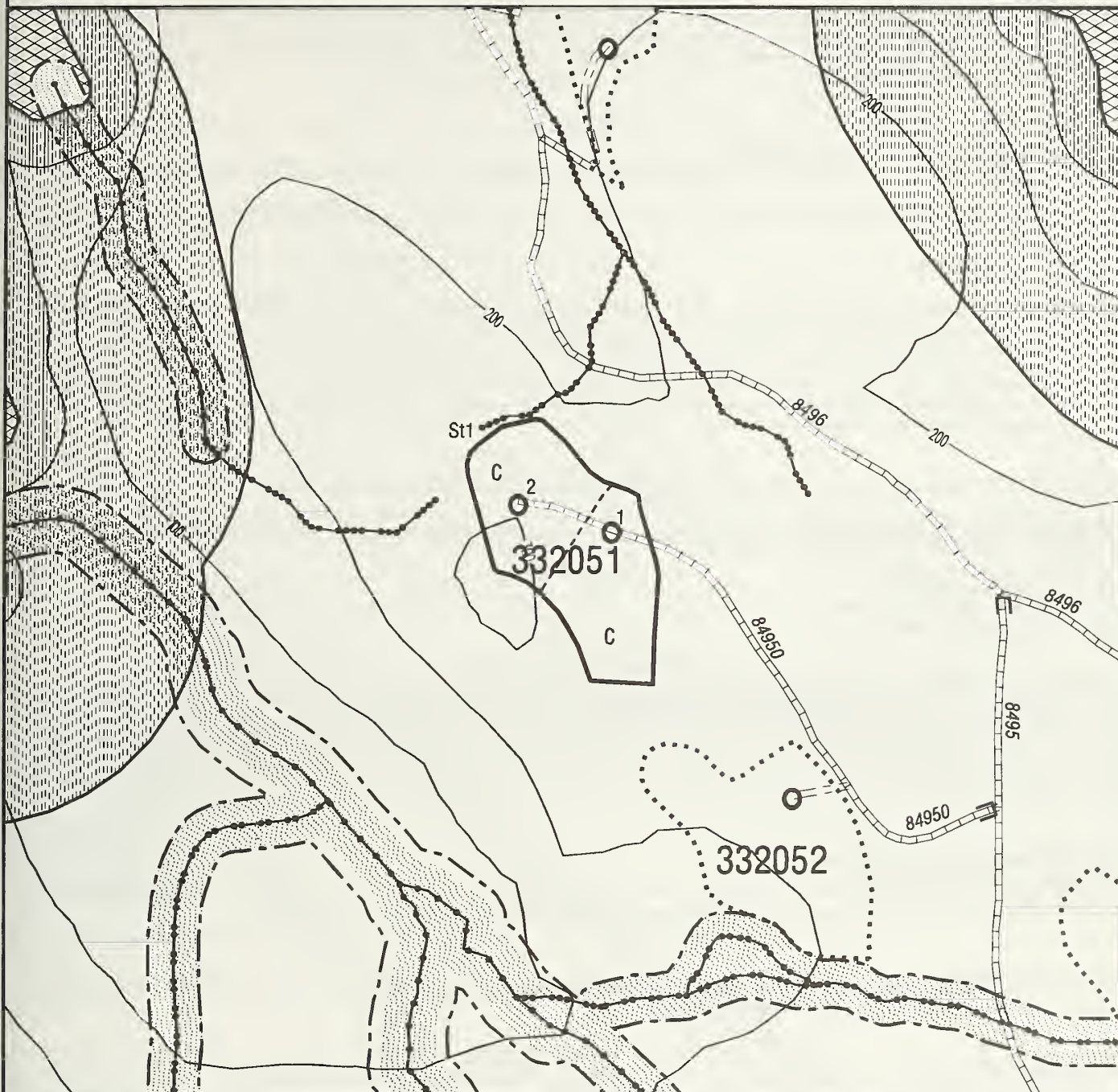


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 35 VCU: 83 UNIT: 332051 ALTERNATIVE(S): 4

ACRES: 12.62 TOTAL NET MBF: 142.4 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 163



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332052

MAP #: 41

## STAND CHARACTERISTICS

A small, functionally even-aged low-elevation stand on a moderate NW slope. Plant association in this 300-year old stand is western hemlock-yellow cedar/blueberry/skunk cabbage. Higher portions of the stand include scattered pockets of western hemlock and yellow cedar in VC4. Stocking is greater on lower slopes, and productivity is higher (VC5). Understory vegetation includes blueberry, rusty menziesia, and skunk cabbage. Muskeg borders the stand on the east, but is not included in the stand. Cedar decline is affecting the yellow cedar. Soils appear to be stable.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area is suitable for heavy partial cut. Artificial guyline anchors will be necessary. 117 ft. of temporary road required. Snag retention is a safety issue.

**Visual Resource Management:** VQO is Partial Retention. Stand is viewed in the background from the visual priority travel route; it is screened in the foreground by buffer trees and unharvested area.

**Soils / Geology:** No concerns noted.

**Fisheries / Watershed:** (1) Stream 1u, 2 (MM)- See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 1 (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 3 (MC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b.

**Wildlife:** Recommend retaining reserve trees and snags to maintain structural habitats. Clearcut with reserves was adopted for this unit.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative because: (1) It contributes a high proportion of stand volume to the programmed harvest. (2) Reserve tree selection provides defective hemlock and yellow cedar for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts. Logging systems feasibility is good for a heavy partial cut. Clearcut would provide a somewhat higher timber yield but would not ameliorate the impacts to visual or wildlife habitat resources as well as clearcut with reserves. Shelterwood with reserves, selection, and sanitation salvage are of questionable engineering feasibility without shifting to helicopter yarding, poorer economic choices, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The eastern boundary of the unit has been drawn back from the muskeg to form a more logical boundary that includes productive timberlands. North and west boundaries follow timber types and logical harvest settings, while maintaining a buffer from adjacent units. Southern boundary is a Class II stream buffer.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist

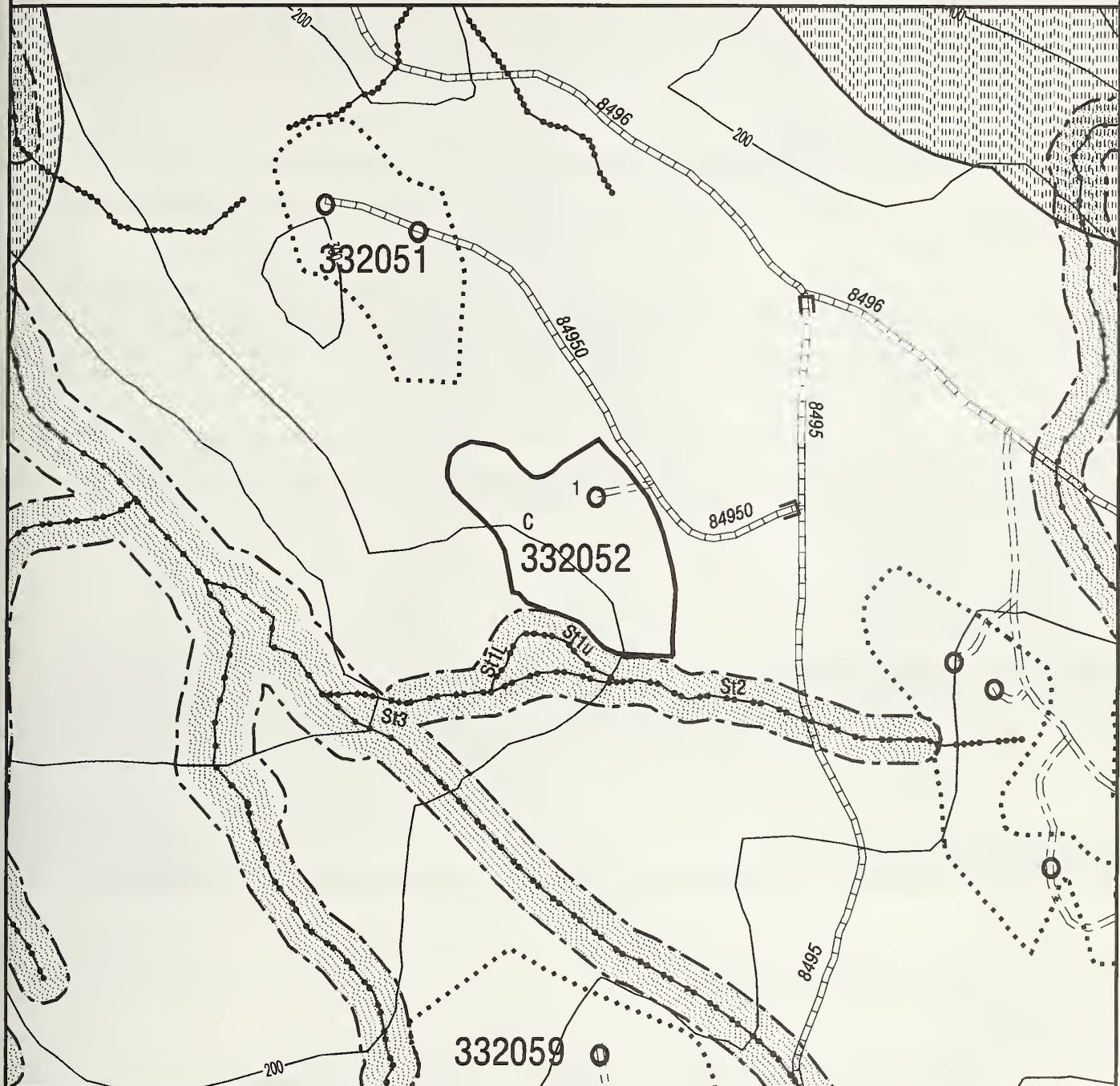


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 41 VCU: 83 UNIT: 332052 ALTERNATIVE(S): 4 6

ACRES: 12.61 TOTAL NET MBF: 230.6 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 162



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPIARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332053

MAP #: 37

## STAND CHARACTERISTICS

Low elevation stand of w. hemlock series in volume classes 4 & 5 with minor spruce and cedar components. Sawtimber is medium sized with fairly high mortality; defect in VC5 is extremely low, and average in VC4. Stand structure is a mosaic of uneven-aged and functionally even-aged, with overstory age 280-350 years. Slopes are gentle to moderate and rolling, with somewhat poor to moderate soil drainage. Understory is blueberry and rusty menziesia with common skunk cabbage, and better drained areas with shield fern in VC5. Groups of healthy, vigorous WH and spruce regeneration occur in the unit; regeneration potential is moderate to high. Visuals are a moderate concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Cable yarding. Entire unit suitable for heavy partial cut. Directional felling needed adjacent to buffers. 1200 feet of temporary spur road required.

**Visual Resource Management:** VQO is Partial Retention. Stand is viewed in the background from the visual priority travel route; it is screened in the foreground by buffer trees and unharvested area.

**Soils / Geology:** No concerns were noted.

**Fisheries / Watershed:** (1) Stream 1 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 3 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Recommend retaining reserve trees and snags to maintain structural habitats. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns were noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Skyline corridors through stream buffers may be needed.
- (7) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

A Class I stream buffer forms the west boundary of the unit. The north is bounded by the estuary buffer. The south boundary was determined from logical setting layout.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization.

## MONITORING PLAN

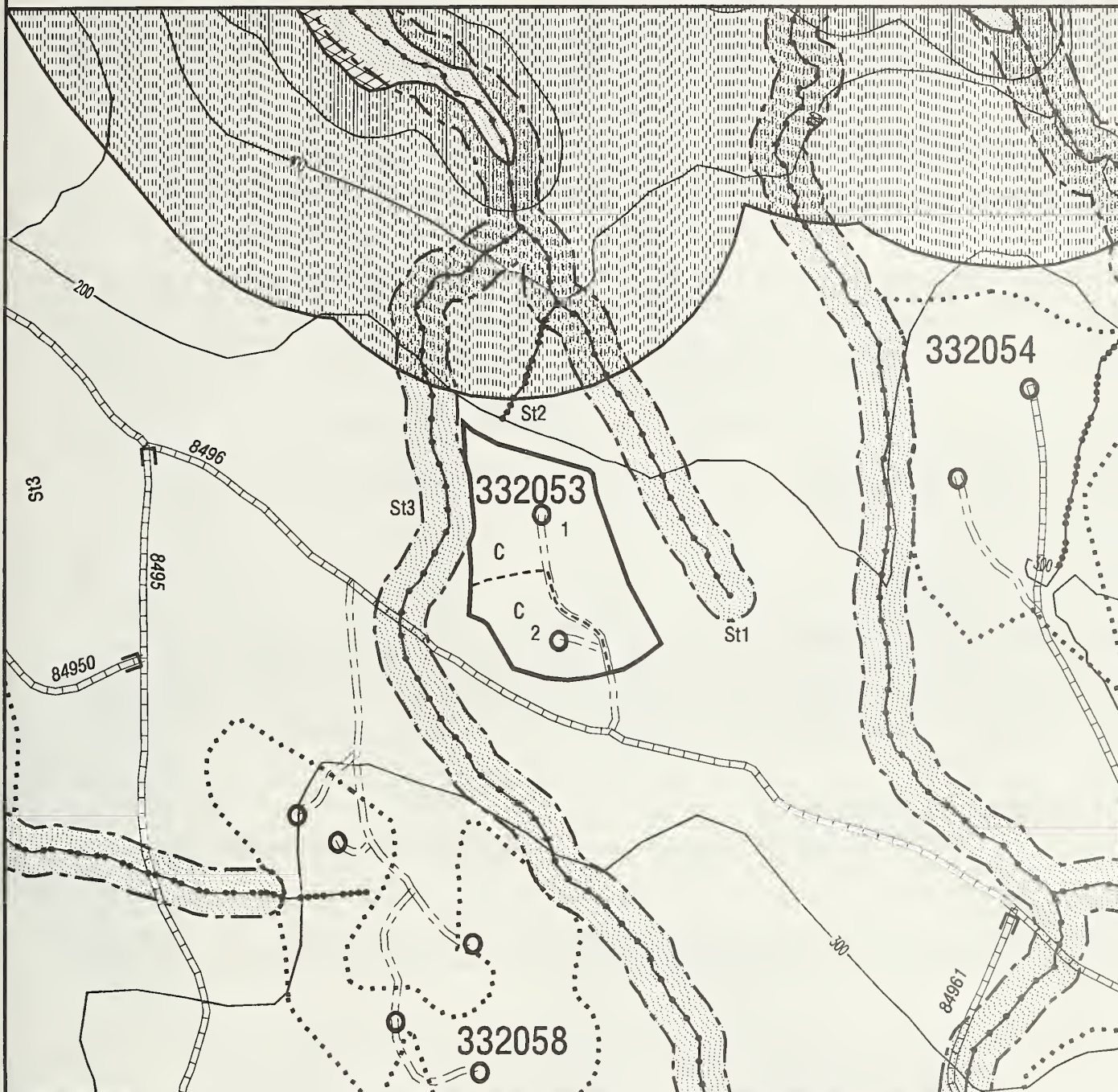
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 37 VCU: 83 UNIT: 332053 ALTERNATIVE(S): 4 6 7

ACRES: 13.33 TOTAL NET MBF: 258 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 163



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St11 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET

0

660

1320

1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332054

MAP #: 36

## STAND CHARACTERISTICS

Lower elevation stand on moderate NW to S slopes. Functionally even-aged, predominantly stocked with western hemlock, with good representation of yellow cedar and scattered dominant spruce. Overstory ages often exceed 350-years. Western hemlock/blueberry plant association. Timber is VC4 and 5, with average defect. Muskeg and low site border much of the stand. Understory is mostly blueberry, with mixture of other shrubs. Poor regeneration, especially in mountain hemlock. Mistletoe infections are common in the hemlock. A Class I stream borders the stand to the west. Estuary buffer borders the stand to the north.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Heavy partial cut is feasible on uphill yarded portion. Tail trees may be needed. 500 ft. of temporary road required. Tail trees may be necessary through Class I buffer.

**Visual Resource Management:** VQO is Partial Retention. Stand is viewed in the background from the visual priority travel route; it is screened in the foreground by buffer trees and unharvested area.

**Soils / Geology:** No concerns noted.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c and BMP 13.9. (2) Stream 2, 3, 4 (MM, MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 5 (ES) - The estuary fringe is an area of approximately 1,000 feet slope distance around all identified estuaries. Estuary fringes are classified as unsuitable for timber harvest. No programmed timber harvest is allowed; however, on a limited basis, unprogrammed timber harvest could be allowed. See TLMP Standards and Guidelines: Beach and Estuary fringe - FS&G's p.4-4 to 4-5.

**Wildlife:** Recommend retaining reserve trees and snags to maintain structural habitats. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The west boundary follows the buffer of the Class I stream. The north boundary is formed by the estuary buffer. Much of the southern and eastern boundaries were due to exclusion of low site and muskeg.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization. Reduction of dwarf mistletoe-infected portion of stand will increase timber production.

## MONITORING PLAN

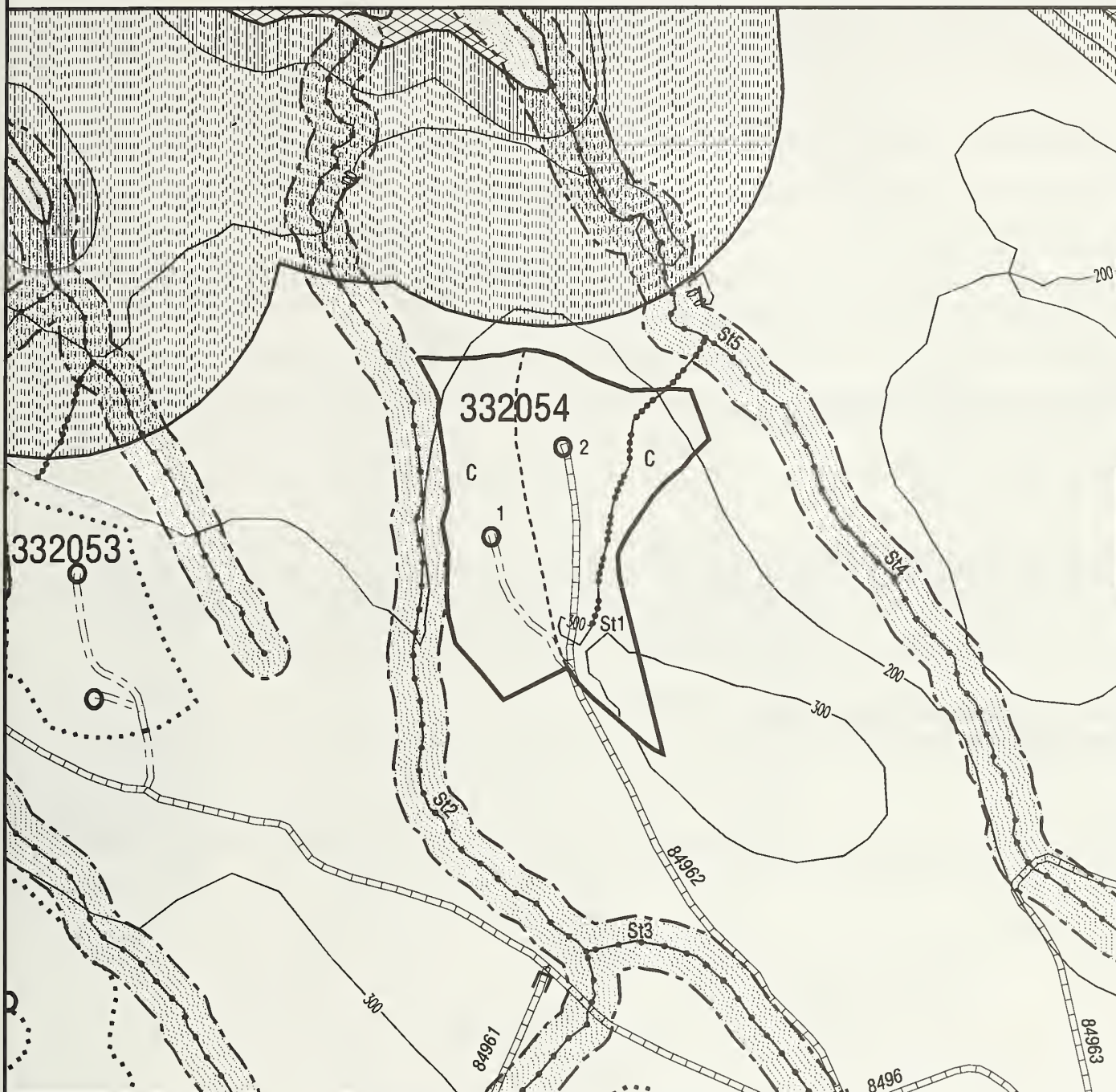
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 36 VCU: 83 UNIT: 332054 ALTERNATIVE(S): 4 6 7

ACRES: 28.22 TOTAL NET MBF: 366.9 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 171



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

S11 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332055

MAP #: 51

## STAND CHARACTERISTICS

Lower elevation stand on moderate NW to E slopes. Functionally even-aged, predominantly stocked with western hemlock, with good representation of yellow cedar and scattered dominant spruce. Overstory ages often exceed 350-years. Western hemlock/blueberry/skunk cabbage plant association. Timber is VC4 with low defect. Southern and western part of the stand are low site mixed conifer. Understory is mostly blueberry, with mixture of rusty menziesia and skunk cabbage. Understory stocking is about 40%, with variable quality. Mistletoe infections are common in the hemlock.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Heavy partial cut is feasible on uphill yarding portion. Snags are a safety concern. 600 ft. of temporary road required. Artificial anchors may be needed.

**Visual Resource Management:** VQO is Maximum Modification. Stand is viewed in the background from the visual priority travel route; it is screened in the foreground by buffer trees and unharvested area.

**Soils / Geology:** No concerns noted.

**Fisheries / Watershed:** (1) Stream 1, 2 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Recommend retaining reserve trees and snags to maintain structural habitats. Shelterwood with reserves was adopted for this unit.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Northeast and northwest boundaries adjusted for Class I stream buffers. Remaining boundaries follow type edges and transition to uneven-aged mosaic condition.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization. Reduction of dwarf mistletoe will increase timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist

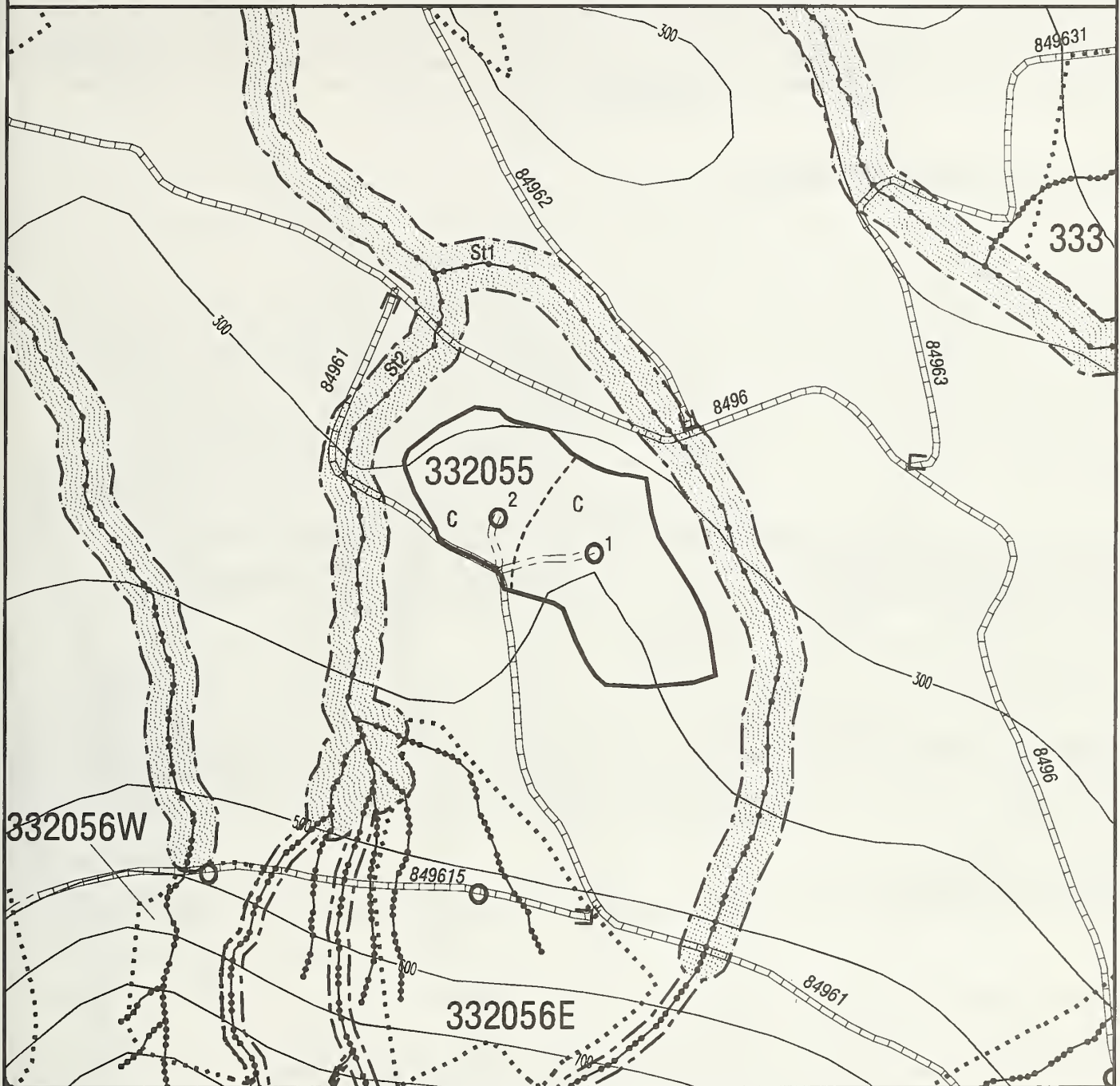


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 51 VCU: 83 UNIT: 332055 ALTERNATIVE(S): 4 6 7

ACRES: 19.29 TOTAL NET MBF: 186.9 QUAD(S): SUMB4 QUARTER QUAD(S): SW

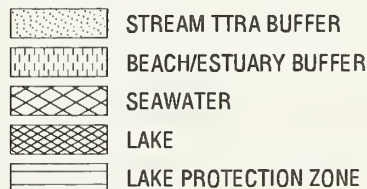
PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 172



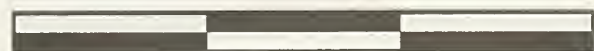
EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE



CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332056

MAP #: 46

## STAND CHARACTERISTICS

Lower to mid elevation stand, 2/3 w. hemlock and w. hemlock-yellow cedar series in VC4 and 1/3 w. hemlock series in VC5; a low-site inclusion contains mixed conifer and hem cedar series. Sawtimber is small in VC4 with extremely low defect and medium in VC5 with high-average defect; mortality is high throughout. Stand structure is a mosaic of uneven-aged and 2-storied with overstory age 300+ years. Lower slopes with VC4 are gentle to moderate with poorly drained soils, upper slopes with VC5 moderate to steep with somewhat poor to moderate soil drainage. Two v-notch creeks and several smaller drainages dissect the slopes; evidence of both stream channel and slope instability is present on upper slopes. Understory is blueberry with common skunk cabbage, and devils club in VC5. Advanced conifer regeneration is light, and mostly WH; regeneration potential is generally high but variable by plant association. Visuals and streamcourse instability are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area is not suitable for partial cut. Snags are safety concern.

**Visual Resource Management:** VQO is Maximum Modification, viewed as background from visual priority travel route.

**Soils / Geology:** Steepest areas and V-notches show instability, deleted from unit. BMPs 12.5, 13.2, 13.5 and 13.9 applicable.

**Fisheries / Watershed** (1) Stream 4, 5, 7, 13 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 1, 2, 3, 5a, 6, 8-11 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 1a, 2a, 4a, 7a, 12 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 14 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 1, 9 - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990. Recommend soil scientist or hydrologist review during layout.

**Wildlife:** Recommend retaining reserve trees and snags to maintain structural habitats. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

The selected alternative is clearcutting, best suited to this unit for these reasons: (1) Converts the area to more vigorous young stand. (2) Virtually all of the net available volume will be harvested. (3) Opportunistic retention of leave trees will help to mitigate the visual effects of harvest. (4) Site quality will be maintained. Soil warming will increase decomposition rate and may maintain or increase productivity of the new stand. Note that, although the prescription is clearcutting, there will be opportunities for feathering unit edges, leaving unharvested patches, and scattered reserves to mitigate visual concerns. Other silvicultural methods that would leave substantially more leave trees are not operationally feasible.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Boundaries conform to timber type changes, stream buffers, and harvest system design. Also, the unit was located to meet adjacency objectives and provide for future entry.

### Forest Productivity Activities:

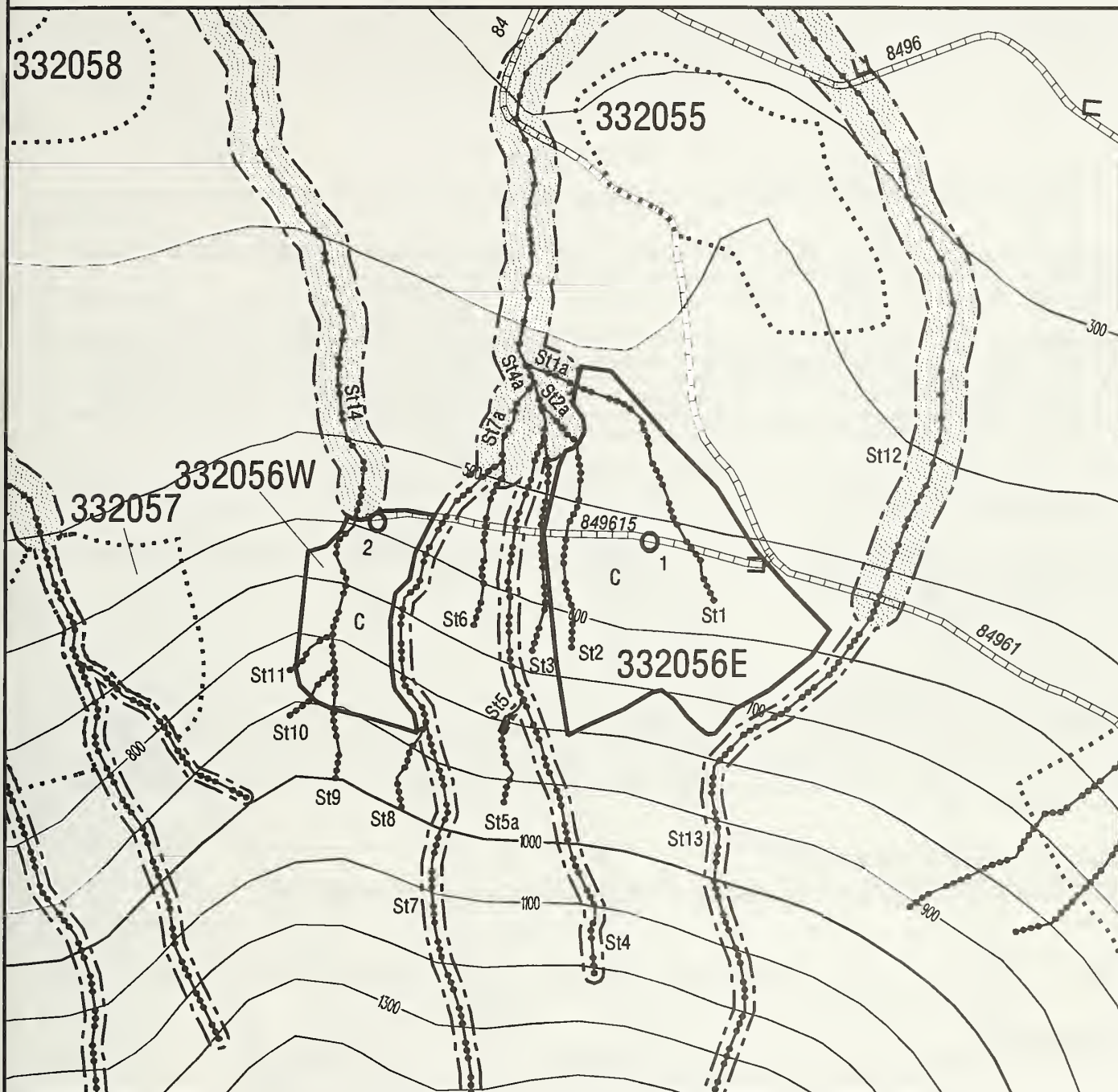
Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 172



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

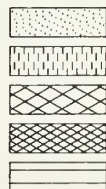
C = CABLE

St1 STREAM ID IN NARRATIVE

## ROAD BEGINS

**O<sup>1</sup> LANDING & NUMBER**

★ EAGLE TREE



## STREAM TTRA BUFFER

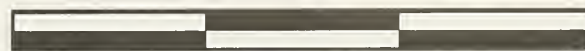
BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0

660

1320

1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332057

MAP #: 64

## STAND CHARACTERISTICS

Lower to mid elevation stand of western hemlock-yellow cedar series in VC 4, 5, and 6, with some western hemlock series mixed into VC6 on upper slopes. Sawtimber is medium to large, with low-average and average defect; mortality is average with snags scattered throughout the unit. Stand structure is functionally even-aged, with overstory age 250+ years. Slopes are generally moderate, dissected by two moderately large Class III streams with extremely steep channel sideslopes prone to instability. Soil drainage is moderately poor throughout except moderate in VC6. Understory is blueberry and rusty menziesia, with abundant skunk cabbage in VC4 and VC5 and devil's club in and around riparian slopes. Some advanced conifer regeneration appears throughout VC5, sparse elsewhere; regeneration potential is moderate. Visuals and stream channel protection are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area not suitable for partial cutting. Snags are a safety concern. Skyline may need to be strung into buffer. 750 feet of temporary road required.

**Visual Resource Management:** VQO is Maximum Modification, viewed in the background from the small boat route. Concern for cumulative impacts of harvest of multiple units. Could mitigate by leaving green culls, shaping unit with scalloped or rounded top, or dropping or reducing size of unit.

**Soils / Geology:** Slope failure on V-notch in center of unit. BMPs 13.2 and 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 2, 3, 6, 7 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 4, 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 1, 8 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Retention of green trees and snags would benefit vertical structure and habitat.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

The selected alternative is clearcutting, best suited to this unit for these reasons: (1) Converts the area to more vigorous young stand. (2) Virtually all of the net available volume will be harvested. (3) Opportunistic retention of leave trees will help to mitigate the visual effects of harvest. (4) Site quality will be maintained. Soil warming will increase decomposition rate and may maintain or increase productivity of the new stand. Note that, although the prescription is clearcutting, there will be opportunities for feathering unit edges, leaving unharvested patches, and scattered reserves to mitigate visual concerns. Other silvicultural methods that would leave substantially more leave trees are not operationally feasible.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Stream buffers form the east and west boundaries. Remaining boundaries conform to timber types, logical yarding limits, and Class 4 soils.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization. Reduction of dwarf mistletoe will increase timber production.

## MONITORING PLAN

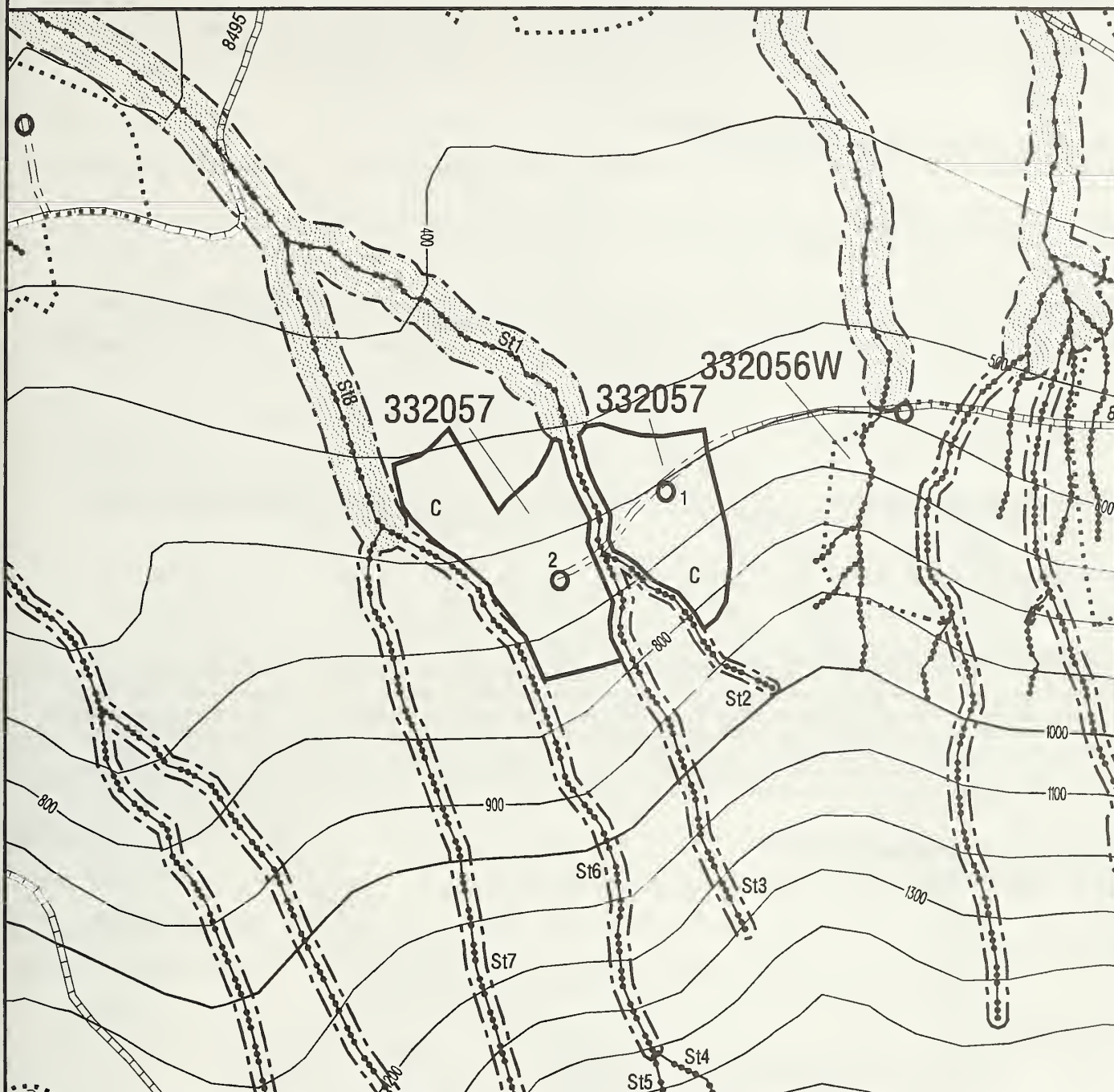
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 64 VCU: 83 UNIT: 332057 ALTERNATIVE(S): 4 6 7

ACRES: 16.2 TOTAL NET MBF: 347.4 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 160



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332058

MAP #: 49

## STAND CHARACTERISTICS

Low elevation stand of w. hemlock-yellow cedar and mixed conifer series in low-productivity volume class 4 and extensive inclusions of low-site volume stands. Sawtimber is medium sized with high defect and mortality. Stand structure is uneven-aged with overstory age 250+ years. Slopes are gentle to moderate with somewhat poor to poor soil drainage. Understory is blueberry and rusty menziesia with abundant skunk cabbage, with copperbrush, deer cabbage, and labrador tea occurring in low-site areas. Only occasional viable regeneration is present, though of mixed species composition; regeneration potential is moderate to low. Mistletoe is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Suitable for heavy partial cut. Snags are a safety concern. One-half mile of temporary road required. Skyline extensions through Class I buffer may be needed.

**Visual Resource Management:** VQO is Partial Retention/Maximum Modification. Stand is viewed in the background from the small boat route; it is screened in the foreground by buffer trees and unharvested area. Shape of area should appear as natural opening.

**Soils / Geology:** No concerns noted.

**Fisheries / Watershed** (1) Stream 1.3 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Retention of green trees and snags would benefit vertical structure and habitat. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves is the selected alternative because: (1) It contributes a high proportion of stand volume to the programmed harvest. (2) Reserve tree selection provides defective trees for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts. (3) Reserves provide a source of blowdown and related soil/ecological functions, as well as favorable microsites for spruce regeneration. (4) Logging systems feasibility is good for a heavy partial cut. (5) Modification of the shelterwood pattern (resembling group shelterwood) will allow removal of dwarf mistletoe concentrations. (6) Sanitation/salvage of lower site and transition areas is integrated into the prescription, and will provide capture of volume and value otherwise lost, mostly in high-value yellow-cedar. Other Alternatives: Clearcut and clearcut with reserves would not meet other resource objectives as well. Group selection is of questionable engineering feasibility without shifting to helicopter yarding, has poorer economics, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary borders a Class I stream buffer. Other boundaries follow transitions to low site and muskeg.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization. Reduction of dwarf mistletoe will increase timber production.

## MONITORING PLAN

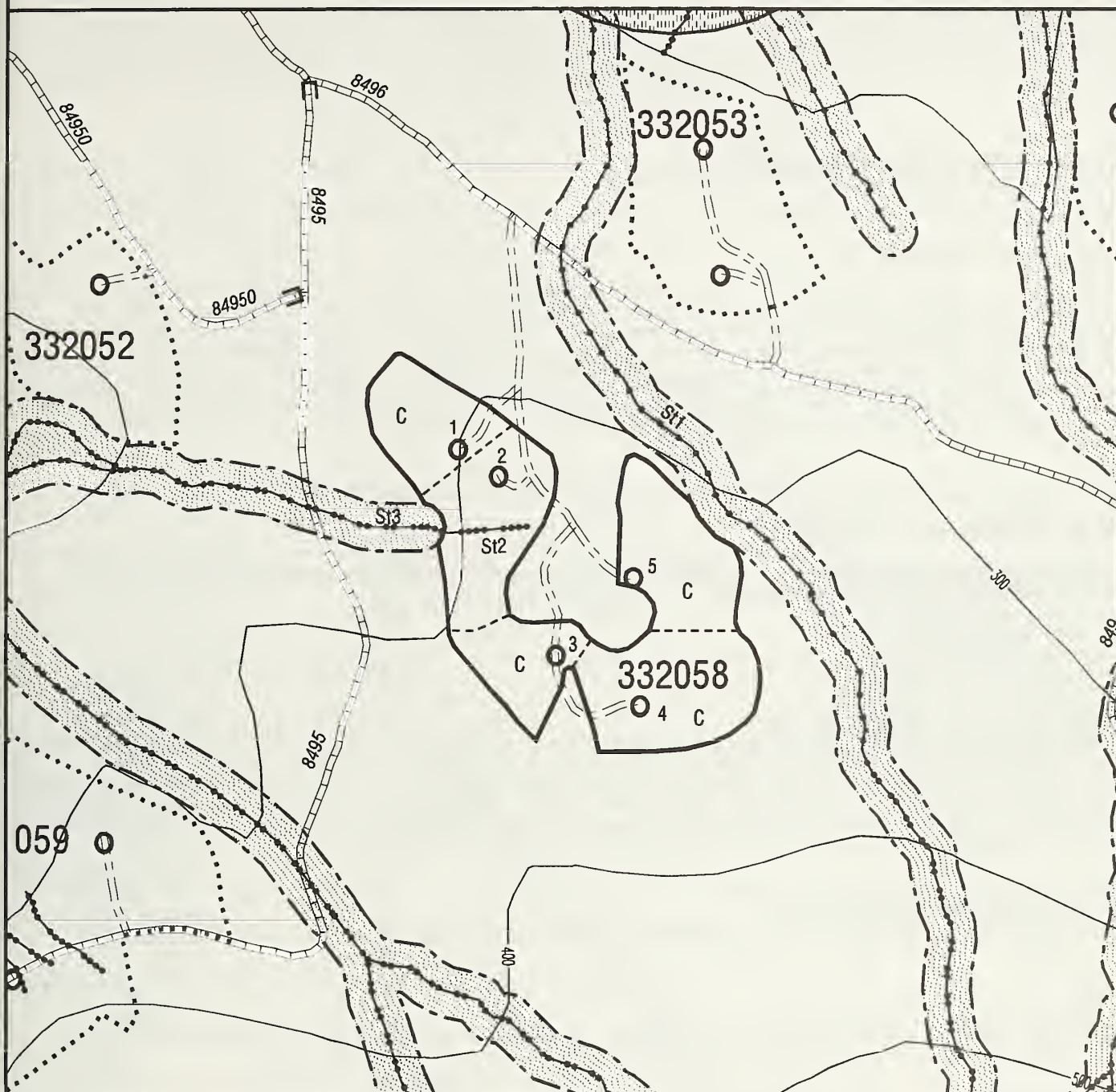
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 49 VCU: 83 UNIT: 332058 ALTERNATIVE(S): 4 6 7

ACRES: 28.91 TOTAL NET MBF: 241.3 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 162



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

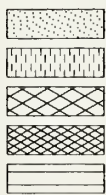
C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

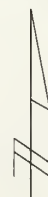
LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332059

MAP #: 52

## STAND CHARACTERISTICS

Low elevation stand of w. hemlock and w. hemlock-yellow cedar series in volume class 5, both with a significant spruce component; sawtimber is medium to large with relatively high defect and very high mortality. Stand structure is a mosaic of 2-storied and uneven, with overstory age 250+ years. Slopes are gentle to moderate; soil drainage is moderate to moderately poor. Understory is blueberry and rusty menziesia with common skunk cabbage. Advanced conifer regeneration occupies 20-40% understory cover, but has only fair to poor vigor and form with moderate mistletoe infection; regeneration potential is generally high except on microsites with poor drainage. Mistletoe is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area not suitable for partial cutting. Snags are a safety concern.

**Visual Resource Management:** VQO is Maximum Modification, viewed as background from visual priority travel route. Shape of unit and location should screen from view.

**Soils / Geology:** No concerns identified.

**Fisheries / Watershed:** (1) Streams 1-5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 6, 7 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 8 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 9, 10 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Recommend retaining reserve trees and snags to maintain structural habitats. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

A combination of clearcut and clearcut with reserves is the selected alternative because: (1) It contributes a high proportion of stand volume to the programmed harvest. (2) Reserve tree selection provides defective hemlock, spruce, and yellow cedar for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, and visual softening of harvest impacts. Logging systems feasibility is good for a heavy partial cut. Clearcutting in portions of the stand will provide higher timber yield, sanitation of mistletoe infected areas, and direct contrast with an alternative method (potential for adaptive management). Shelterwood with reserves, selection, and sanitation salvage are of questionable engineering feasibility without shifting to helicopter yarding, poorer economic choices, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The west and northeast sides of the unit follow the buffer of the two Class II streams. The north and south boundaries conform logical yarding limits and timber types.

### Forest Productivity Activities:

Soil warming from direct exposure to solar radiation will increase biological activity and, consequently, productivity. Windthrow of reserve and border trees will mix mineral and organic soil layers, increasing fertility and reducing podzolization. Reduction of dwarf mistletoe will increase timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

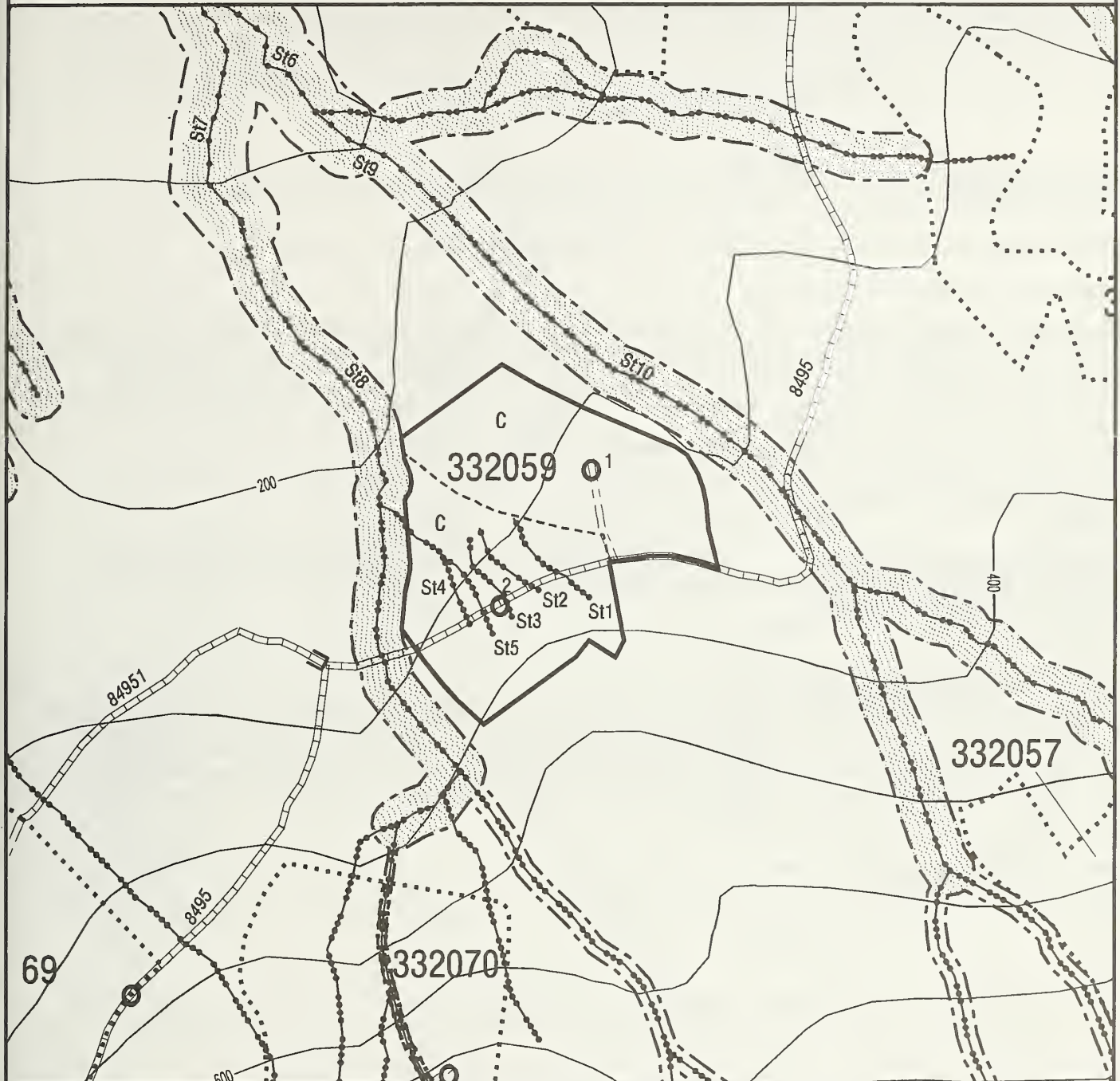


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 52 VCU: 83 UNIT: 332059 ALTERNATIVE(S): 2 4 6 7

ACRES: 29.33 TOTAL NET MBF: 672.6 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 27 ROLL NO.: 888 PRINT NO.: 148



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332067

MAP #: 57

## STAND CHARACTERISTICS

The stand extends northeast, from the nose of a mid-elevation ridge to the lower slopes. Slopes are mostly moderate, but steep pitches range upwards to 80%. Soils are somewhat poorly drained, but no muskegs were found in the stand. The timber is primarily western hemlock series in volume classes 4 & 5, medium sawtimber, with average defect in VC4 and very low defect in VC-5. Species composition is primarily western and mountain hemlock, with appreciable amounts of Sitka spruce and yellow cedar. Mortality is average to low. Stand structure varies, with a mosaic of uneven-aged and 2-storied canopies. Overstory age generally exceeds 300 years. Understory is composed of blueberry with abundant skunk cabbage. Advanced conifer regeneration is common, but about 50% defective or suppressed; regeneration potential is moderate. Mistletoe occurs in a patchy distribution, and is a management concern. Moderate animal damage, mostly from porcupines.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Stand is suitable for heavy partial cut. Road access would require about 1/4 of the stand to be downhill yarding. Snags are safety concern/constraint. Skyline yarding. Tailtrees required. 700 feet of temporary road required.

**Visual Resource Management:** VQO is Maximum Modification. Viewed in midground and background from small boat route on Port Houghton.

**Soils / Geology:** No special concerns.

**Fisheries / Watershed:** (1) Stream 1a, 1b, 2, 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 1, 4, 5, 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 7 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area defined by the side-slope break or 100ft horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16

**Wildlife:** Retention of snags and live trees would enhance habitats for many wildlife species. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves best meets resource objectives: (1) It converts the unit to a more vigorous young stand, and will reduce the level of dwarf mistletoe. (2) About 90% of net volume available will be logged, contributing to the programmed harvest. (3) VQO of Maximum Modification will be met by retaining substantial amounts of green trees in critical locations. (5) Site quality will be maintained. Soil warming will increase decomposition rate and could increase productivity of the new stand. Reserve groups will provide structural diversity and ecological functions. Alternatively, clearcutting the entire unit (or clearcut with reserves) would increase timber yield but not meet visual objectives as well. Group selection and sanitation salvage are of questionable engineering feasibility. Deferring treatment would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit boundaries were laid out to conform with timber type boundaries and logical breaks for logging. The upper boundary conforms with the top of the ridge; the lower boundary follows a slope break at the terminus of the logging setting.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to increase timber production. Reduction of dwarf mistletoe during the regeneration process and through species selection at precommercial thinning can increase productivity of the new stand.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

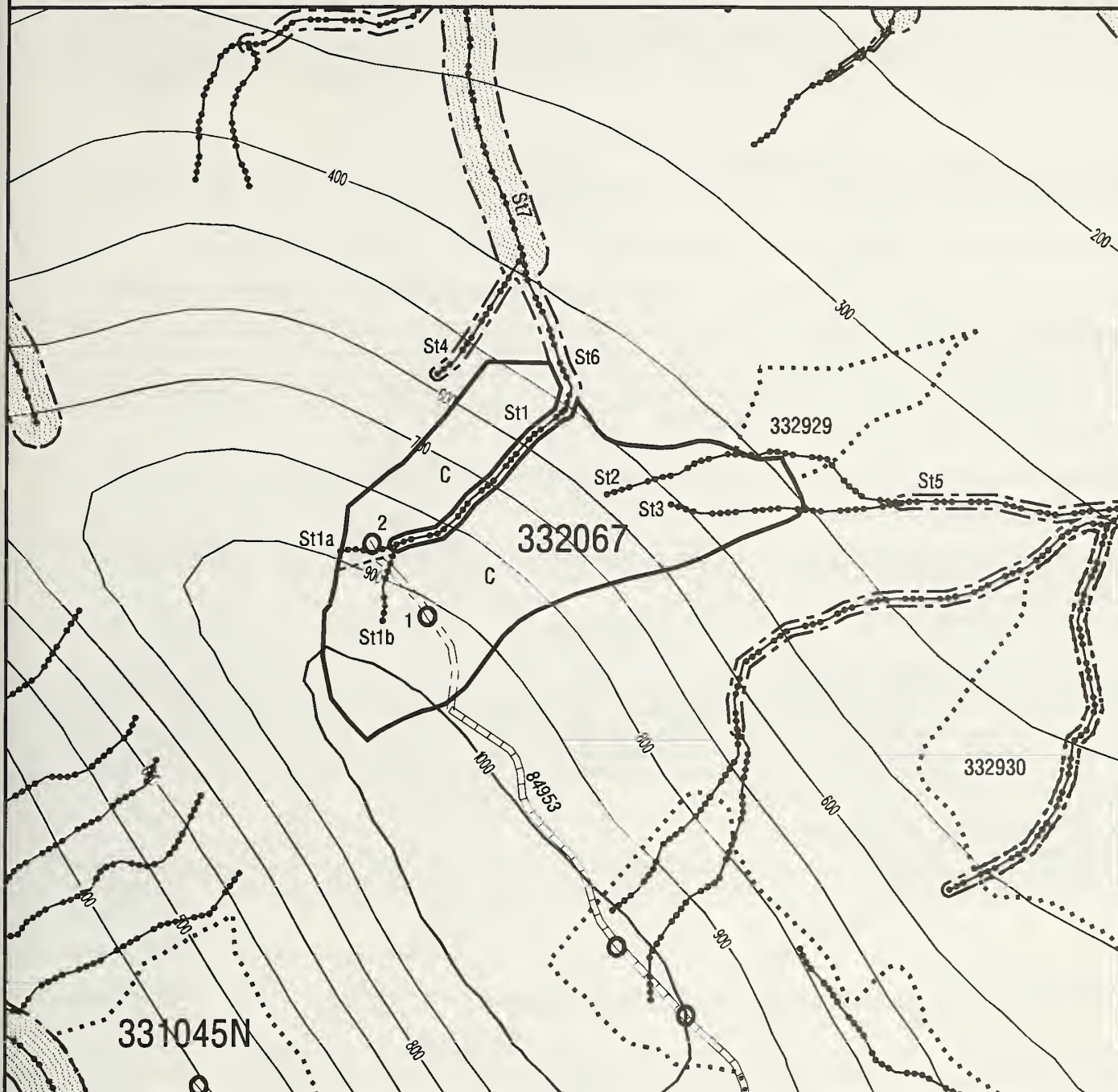


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 57 VCU: 83 UNIT: 332067 ALTERNATIVE(S): 2 4 6 7

ACRES: 34.55 TOTAL NET MBF: 641.5 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 148



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332068

MAP #: 69

## STAND CHARACTERISTICS

Mid to upper elevation stand, 3/4 western hemlock series in VC5 and 1/4 mixed conifer and western hemlock-yellow cedar series in VC4. The VC5 stratum contains large sawtimber with low defect; the VC4 stratum is stocked with medium sawtimber with medium defect. Mortality is relatively high, with scattered snags throughout, especially in the VC5 stratum. Stand structure is a mosaic of even-aged and 2-storied, with overstory age often exceeding 350 years. NE-facing slopes are moderately steep. Soils are moderately well to poorly drained. Understory is blueberry, with devils club and shield fern in parts of VC5 and skunk cabbage in most of VC4. Advanced conifer regeneration is fairly sparse; regeneration potential ranges from low in the mixed conifer VC4 sites, to high in the more productive sites. Cedar decline is present in parts of VC4.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Stand is suitable for heavy partial cut. Road access would require downhill yarding on a minor portion of the stand. Snags are safety concern/constraint. Complex guyline anchors, multiple tailholds, tail trees required. Small length temporary road required.

**Visual Resource Management:** VQO is Maximum Modification. Middleground and background from visual small boat route on Port Houghton.

**Soils / Geology:** Original boundary included areas of instability, and boundary was adjusted. No problems anticipated from unit as modified. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 1-4 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 5, 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 7 (MM) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 13.16 sec 3b and BMP 13.9.

**Wildlife:** Opportunities for retaining snags and green trees for structural habitat diversity. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves best meets resource objectives: (1) It converts the unit to a more vigorous young stand, and will reduce the level of dwarf mistletoe. (2) About 90% of net volume available will be logged, contributing to the programmed harvest. (3) VQO of Maximum Modification will be met by retaining substantial amounts of green trees in critical locations. (5) Site quality will be maintained. Soil warming will increase decomposition rate and could increase productivity of the new stand. Reserve groups will provide structural diversity and ecological functions. Alternatively, clearcutting the entire unit (or clearcut with reserves) would increase timber yield but not meet visual objectives as well. Group selection and sanitation salvage are of questionable engineering feasibility. Deferring treatment would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The northern extension of the original unit layout was dropped due to soil instability and visuals. An extension to the southeast was added to make a logical and operationally feasible unit that conforms to topography and timber type. This resulted in a reconfiguration of the unit, from the original vertical slope orientation to a more horizontal, linear setting.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to increase timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

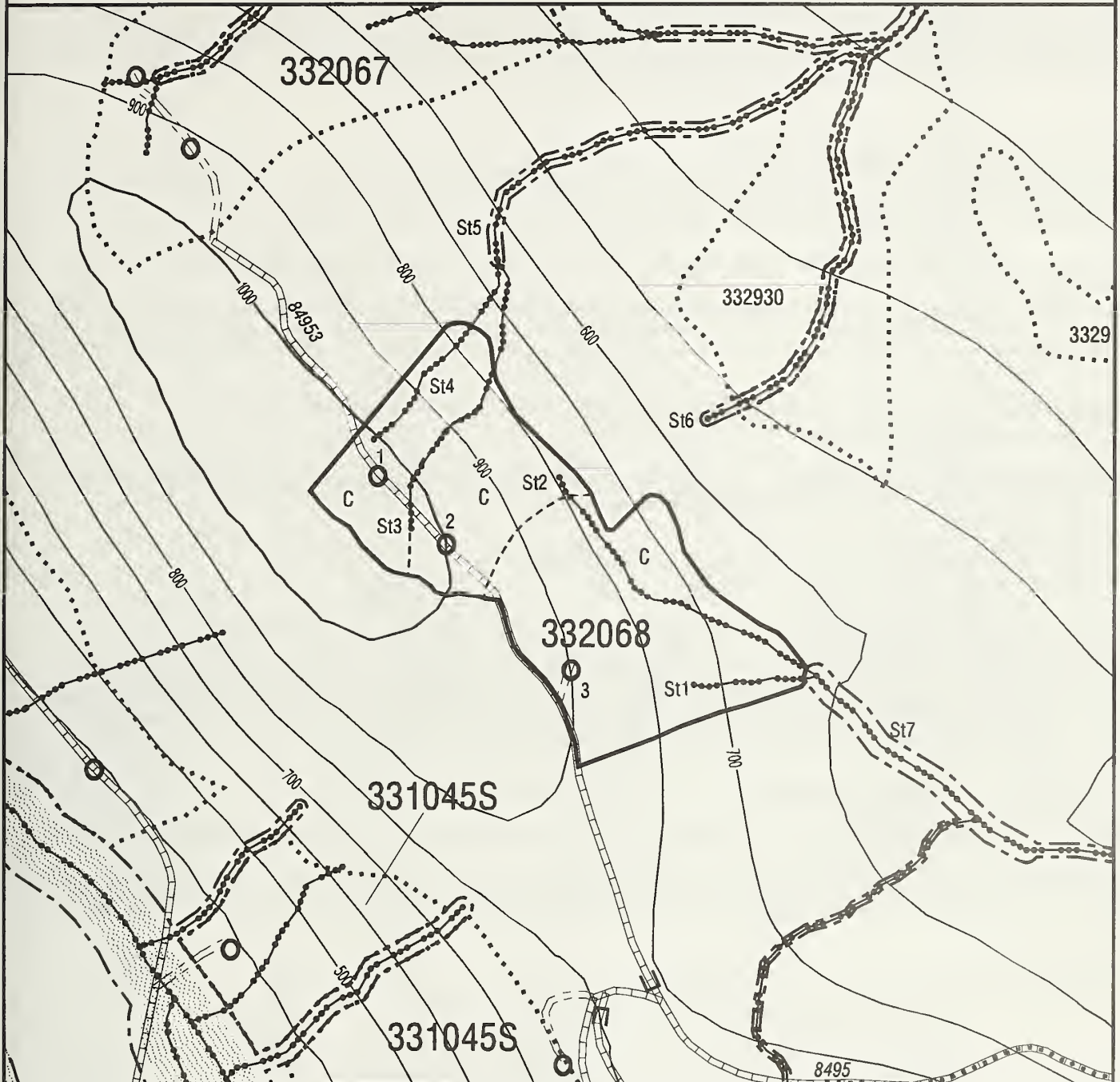


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 69 VCU: 83 UNIT: 332068 ALTERNATIVE(S): 2 4 6 7

ACRES: 37.25 TOTAL NET MBF: 690.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 148



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332069

MAP #: 60

## STAND CHARACTERISTICS

Lower elevation stand of w. hemlock-yellow cedar and mixed conifer series in VC4, composed of medium sawtimber with low defect and mortality. Stand structure is functionally even-aged with overstory age 350+ years. NW-facing slopes are gentle to moderate with moderately poor soil drainage. Understory is composed of blueberry and rusty menziesia with common skunk cabbage, and deer cabbage indicating areas of poorer productivity. Advanced conifer regeneration occupies 20-40% understory cover with variable quality; regeneration potential is moderate, to low where deer cabbage is abundant. Mistletoe and cedar decline are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Suitable for heavy partial cutting. Snag retention not recommended within the unit, due to human safety. Some skyline extensions through the stream buffer may be needed. Complex guyline anchors required outside of unit. 200 feet of temporary road required.

**Visual Resource Management:** VQO is Maximum Modification. Middle Ground and background from small boat route on Port Houghton.

**Soils / Geology:** No special concerns; adjacent Class II stream is adequately buffered, and unit boundaries were located to avoid areas of high instability. BMPs 12.5 and 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 2 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Opportunities for retaining snags and green trees for structural habitat diversity. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Some skyline extensions through the buffer may be necessary.
- (6) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit boundaries were determined from the location of the Class II stream on the west and the extent of timber types and logical harvest settings elsewhere.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to increase timber production. Planting of yellow cedar will increase or maintain compositional diversity, and could increase productivity as compared with a stand of lesser species richness.

## MONITORING PLAN

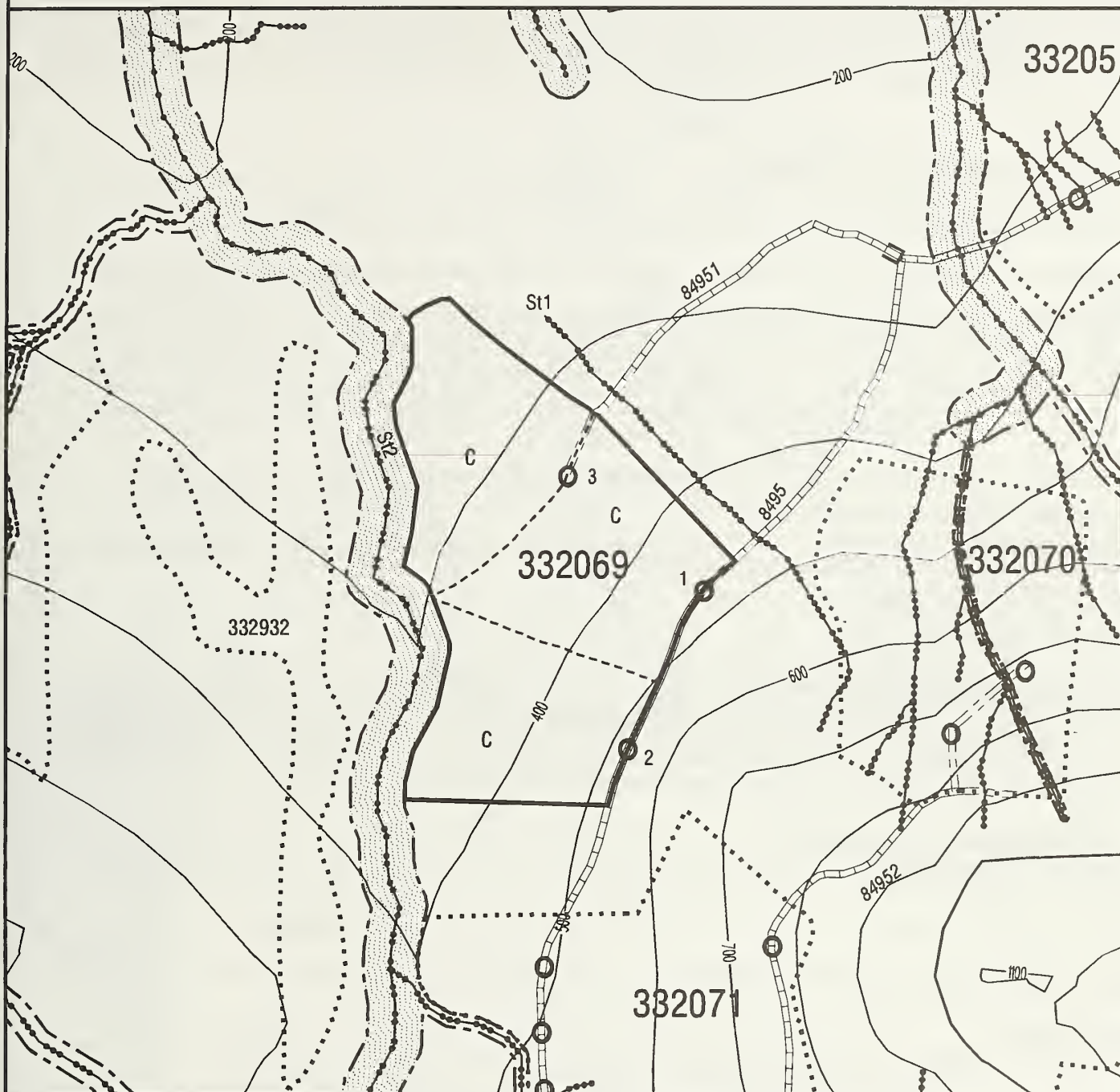
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 60 VCU: 83 UNIT: 332069 ALTERNATIVE(S): 2 4 6 7

ACRES: 44.1 TOTAL NET MBF: 447.7 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 160



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

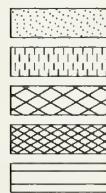
C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○ LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0 660 1320 1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332070

MAP #: 66

## STAND CHARACTERISTICS

Lower to mid elevation stand of western hemlock series with scattered large spruce in VC6, and a small inclusion of mixed conifer in VC4. Sawtimber is medium size with low defect and mortality. Stand structure is functionally even-aged with overstory ages exceeding 300 years. Steep slopes are irregular and broken, with moderately well to somewhat poorly drained soils. There is a class III V-notch stream with a recent debris torrent, indicating instability. Understory is a mixture of blueberry, skunk cabbage, devils club, and shield fern on better microsites. A moderate amount of western hemlock regeneration occurs in the unit; regeneration potential is moderate. Streamcourse instability and mistletoe on upper southern slopes are management concerns in this unit; visuals and windthrow are only moderate concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** From a logging systems perspective, the area is not suitable for partial cutting. Snag retention would create safety hazard to woods workers. Tailhold outside of unit required. 900 feet of temporary roads required.

**Visual Resource Management:** VQO is Maximum Modification. Midground and background from visual priority travel route on Port Houghton.

**Soils / Geology:** Unstable reaches in Class III V-notches. Unit boundary and settings have been modified to minimize potential for soil instability. BMP 132. and 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 1, 2a, 2u, 4a, 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 2L, 3, 5a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (3) Stream 4u, 4L, 7, 8, 9 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (4) Stream 6 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Opportunities for retaining snags and green trees for structural habitat diversity. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns were noted.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit boundary was modified to meet adjacency and wildlife objectives and avoid conflict with the Class II stream. Otherwise, the boundaries conform with logical harvest settings and timber type boundaries.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to benefit timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

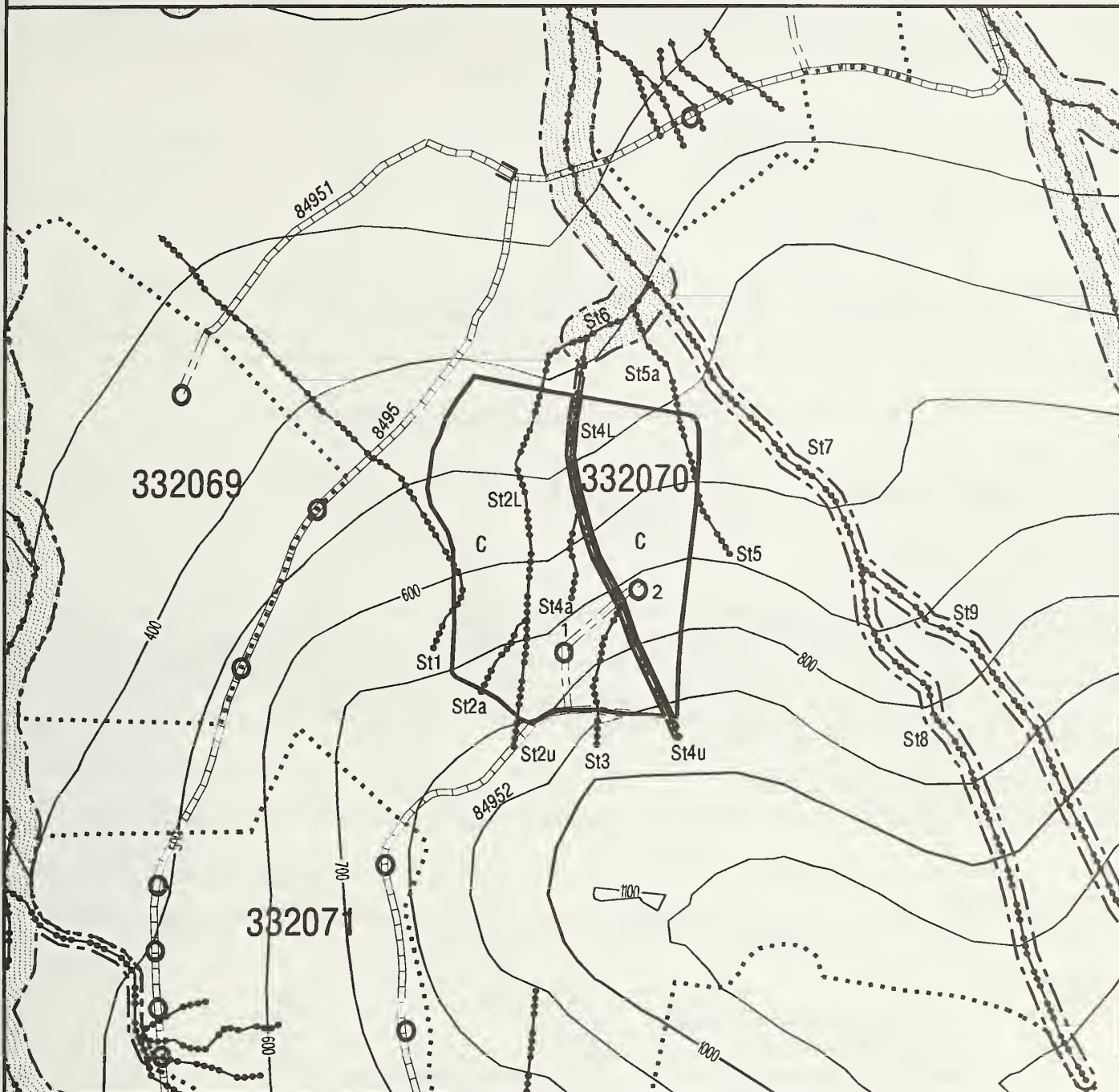


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 66 VCU: 83 UNIT: 332070 ALTERNATIVE(S): 2 4 6 7

ACRES: 29.12 TOTAL NET MBF: 867 QUAD(S): SUMB4 QUARTER QUAD(S): SW

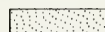
PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 160



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St11 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
★ EAGLE TREE



STREAM TTRA BUFFER



BEACH/ESTUARY BUFFER



SEAWATER



LAKE



LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332071

MAP #: 74

## STAND CHARACTERISTICS

Mid elevation stand, 70% western hemlock-yellow cedar series in VC4, 25% western hemlock and western hemlock-yellow cedar series in VC 5 & 6, and 5% low-site mixed conifer inclusions. Sawtimber is medium sized with relatively low defect; mortality is high in VC4. Stand structure is functionally even-aged with overstory age exceeding 300 years. Slopes are moderately steep and somewhat poorly drained. Understory is a mixture of blueberry, skunk cabbage, and rusty menziesia. Mixed species regeneration is scattered throughout the unit; regeneration potential is moderate to high. Mistletoe is a management concern, and windthrow only a moderate concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** The area is suitable for a heavy partial cut. Snag retention is a safety concern. Skyline yarding. Split yarding at V-notches. Multiple guyline anchors required. Tail trees may be required in or through Class II buffer.

**Visual Resource Management:** VQO is Maximum Modification. Although the unit is in the background for the small boat route, its contribution to the viewshed impact is less significant than surrounding units, partially due to irregular shape and oblique viewing angle.

**Soils / Geology:** No concerns. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1-4 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 1a, 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 5 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** The opportunity for retaining snags and green trees for wildlife habitat diversity is noted. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

A combined treatment that incorporates clearcutting and clearcutting with reserves best meet resource objectives: (1) It converts the most of the unit to a more vigorous young stand. (2) About 90% of net volume available will be logged, contributing to the programmed harvest. (3) VQO of Maximum Modification will be met by retaining substantial amounts of green trees in critical locations. (5) Site quality will be maintained. Soil warming will increase decomposition rate and could increase productivity of the new stand. Reserve groups will provide structural diversity and ecological functions. Alternatively, clearcutting the entire unit would increase timber yield but not meet visual objectives. Shelterwood with reserves, group selection, and sanitation salvage are of questionable engineering feasibility. Deferring treatment would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

On the west, the boundary was adjusted to conform to the buffered Class II and III streams. All other boundaries were determined from logical timber types and harvest settings.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to benefit timber production. Reduction in mistletoe infection is expected to increase net production of timber.

## MONITORING PLAN

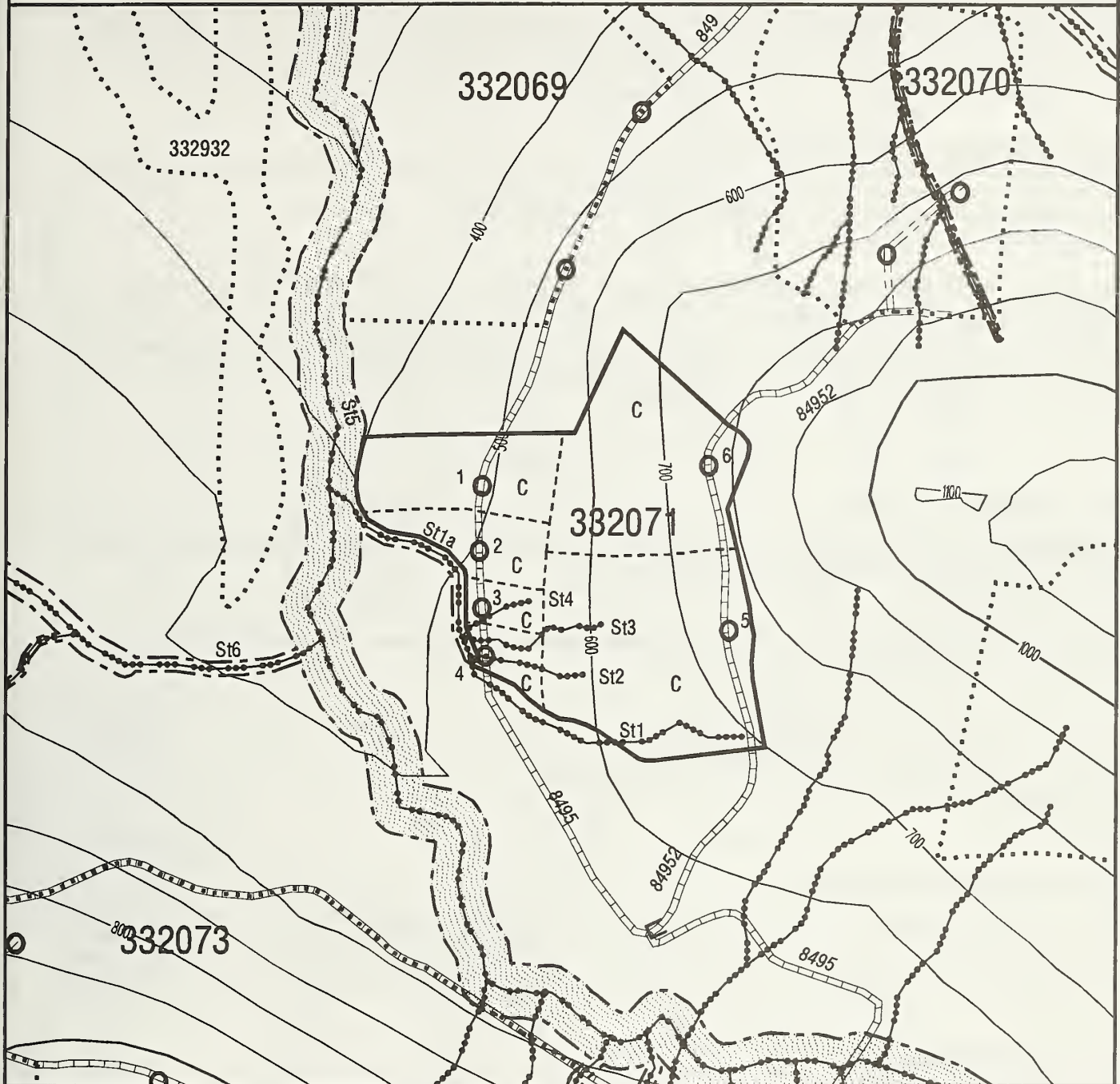
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 74 VCU: 83 UNIT: 332071 ALTERNATIVE(S): 2 4 6 7

ACRES: 41.28 TOTAL NET MBF: 538.2 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 27 ROLL NO.: 888 PRINT NO.: 149



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

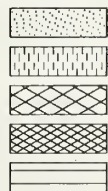
C = CABLE

St11 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○<sup>1</sup> LANDING & NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



0

660

1320

1980 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332072

MAP #: 75

## STAND CHARACTERISTICS

Mid to upper elevation stand of western hemlock-yellow cedar series in volume classes 4, 5, and 6. Groups of spruce occur in concave swales in VC6, and mtn. hemlock-spruce type is found on the north side of the ridge in VC5. Sawtimber is medium sized in VC4 and VC5, and large in VC6; defect is low throughout. Mortality is high in VC4 and average elsewhere. Stand structure is functionally even-aged with overstory age 350+ years. Slopes are moderately steep, with steep pitches in VC6 and evidence of instability; soils range from moderately well to poorly drained by plant association. Understory is dense to moderately open blueberry, with skunk cabbage common to abundant and much devils club in VC6. Advanced conifer regeneration is sparse; regeneration potential is high except in VC4.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** From a logging systems perspective, the area is not suitable for partial cutting. Snag retention would create safety hazard to woods workers. Tailholds outside of unit boundary and in buffer to south required. 700 feet of temporary spur required.

**Visual Resource Management:** Not seen from visual priority travel small boat route. VQO is Maximum Modification.

**Soils / Geology:** BMPs 12.5, 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 1, 1a, 1b, 2a, 3a, 4, 6-10 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 3, 2, 12 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 11 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 7, 8 - Wetland area associated with stream(s) or within unit boundary. Apply BMP 12.5 and Executive Order 11990. Recommend soil scientist or hydrologist review during layout.

**Wildlife:** Snags and green trees should be retained where feasible to provide structural habitat. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Skyline extensions with tailholds outside the unit boundary will be needed in the two eastern settings. Skyline extensions through stream buffer in south required.
- (6) Minimize sediment yield to fish bearing streams.
- (7) Partial suspension.

## VI. SILVICULTURE SYSTEM ALTERNATIVES CONSIDERED

- (1) Clearcut-Selected Alternative
- (2) Clearcut with Reserves
- (3) Shelterwood with Reserves.
- (4) Defer.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcutting** best meets resource objectives: (1) It converts the most of the unit to a more vigorous young stand. (2) About 95% of net volume available will be logged, contributing to the programmed harvest. (3) VQO of Maximum Modification will be met. (4) Site quality will be maintained. Soil warming will increase decomposition rate and could increase productivity of the new stand. Although the general Rx is clearcutting, some groups will be reserved where operationally feasible, such as between settings. Reserve groups will provide structural diversity and ecological functions. Broad-scale even-aged management with reserve trees would not be operationally feasible. Group selection and sanitation salvage were not operationally feasible and were not considered in detailed analysis. Deferring treatment would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The southwest boundary of the unit generally follows timber transitions to low site and open conditions. The southern extension of the unit includes a high productivity site, with buffering for a series of streams. The north boundary of the unit follows the ridgeline and transition to mountain hemlock on lower site. The remaining areas conform to logical logging settings and timber types.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to benefit timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy.& reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if>700 tpa, VC5+,resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

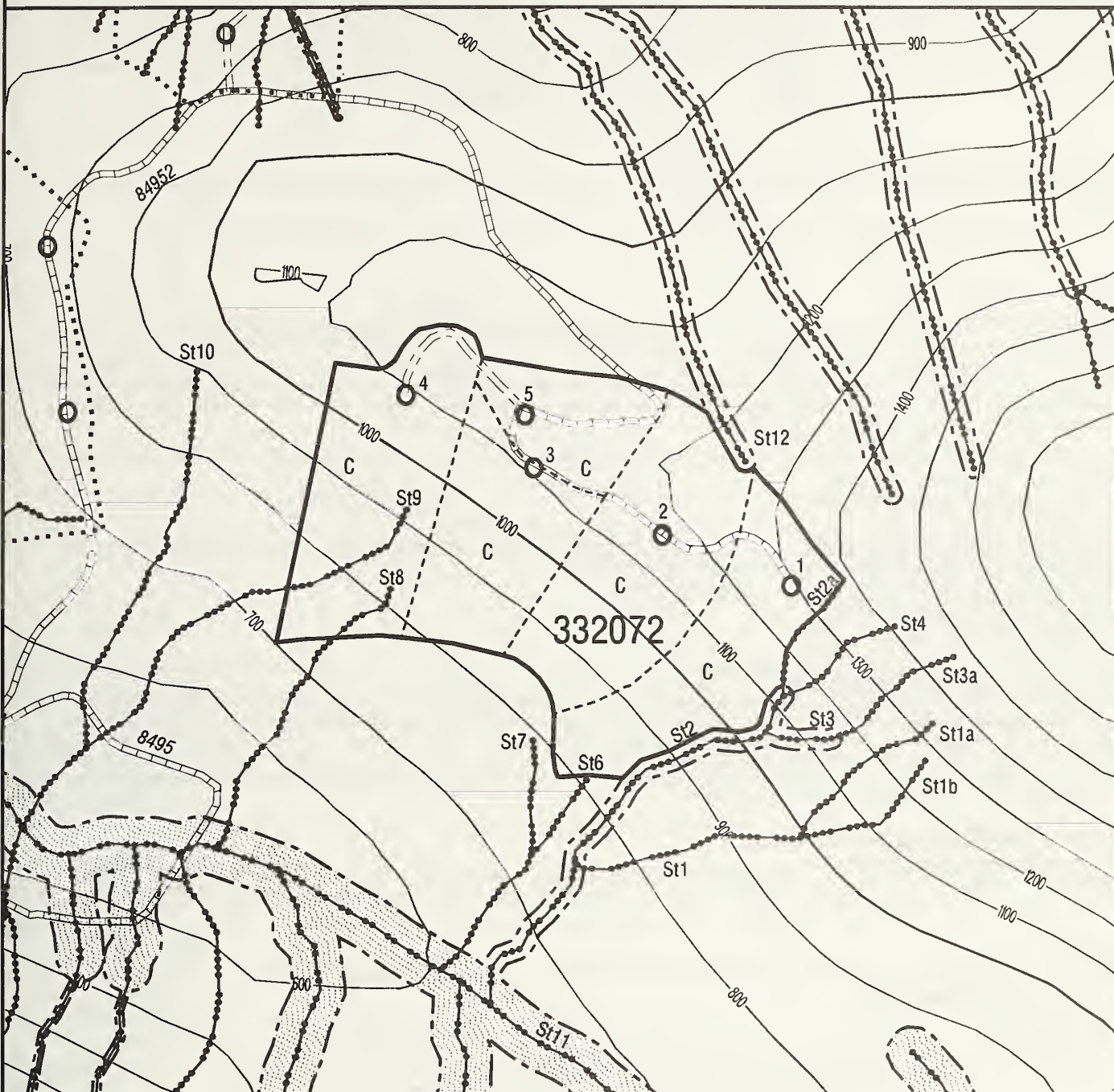


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 75 VCU: 83 UNIT: 332072 ALTERNATIVE(S): 4 6 7

ACRES: 66.87 TOTAL NET MBF: 1705.5 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 160



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332073

MAP #: 87

## STAND CHARACTERISTICS

Mid to upper elevation stand, 3/4 western hemlock series in VC6 and 1/4 western hemlock-yellow cedar series in VC5. A small area of low-productivity VC4 is also included in the unit, with mixed conifer and hemlock-cedar series. VC6 has large sawtimber with low-to-average defect. VC5 has medium sawtimber with high defect and average level of mortality. Stand structure is functionally even-aged with overstory age 200-300+ years. Slopes are moderately steep with moderately well to somewhat poorly drained soils and few drainages. Understory is blueberry, with dense devils club and some shield fern in VC6 and abundant skunk cabbage in VC5. Advanced western hemlock regeneration is abundant, with groups including spruce regen in canopy gaps created by windthrow; regeneration potential is moderate. Windthrow is a management concern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area suitable for heavy partial cut. Layout suitable for small slackline system. No significant issues identified. 400 feet of temporary road required.

**Visual Resource Management:** VQO is Maximum Modification. Part of the unit is viewed from midground; part from background from visual priority travel route.

**Soils / Geology:** No concerns.

**Fisheries / Watershed** (1) Stream 1, 4, 5, 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Stream 2, 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Stream 7, 8 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** As in all other units, the opportunity for retaining snags and green trees for wildlife habitat diversity is noted. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Minimize sediment yield to fish bearing streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcutting best meets resource objectives: (1) It converts the most of the unit to a more vigorous young stand. (2) About 95% of net volume available will be logged, contributing to the programmed harvest. (3) Site quality will be maintained. Soil warming will increase decomposition rate and could increase productivity of the new stand. Although the general Rx is clearcutting, some groups will be reserved where operationally feasible, such as between settings. Reserve groups will provide structural diversity and a source of blowdown for ecological functioning. However, broad-scale even-aged management with reserve trees would not be operationally feasible. Group selection and sanitation salvage were not operationally feasible and were not considered in detailed analysis. Deferring treatment would not provide a timber yield and would not regenerate a relatively low impact unit with high regeneration priority.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The southwest boundary follows the ridgeline. The north/northeast boundary is flagged along the transition to open timber, following the buffer along the Class 2 stream in the east corner of the unit. The general conformation of the unit is along timber type transitions and logical logging settings. Southeast boundary buffers Class III v-notch.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to benefit timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

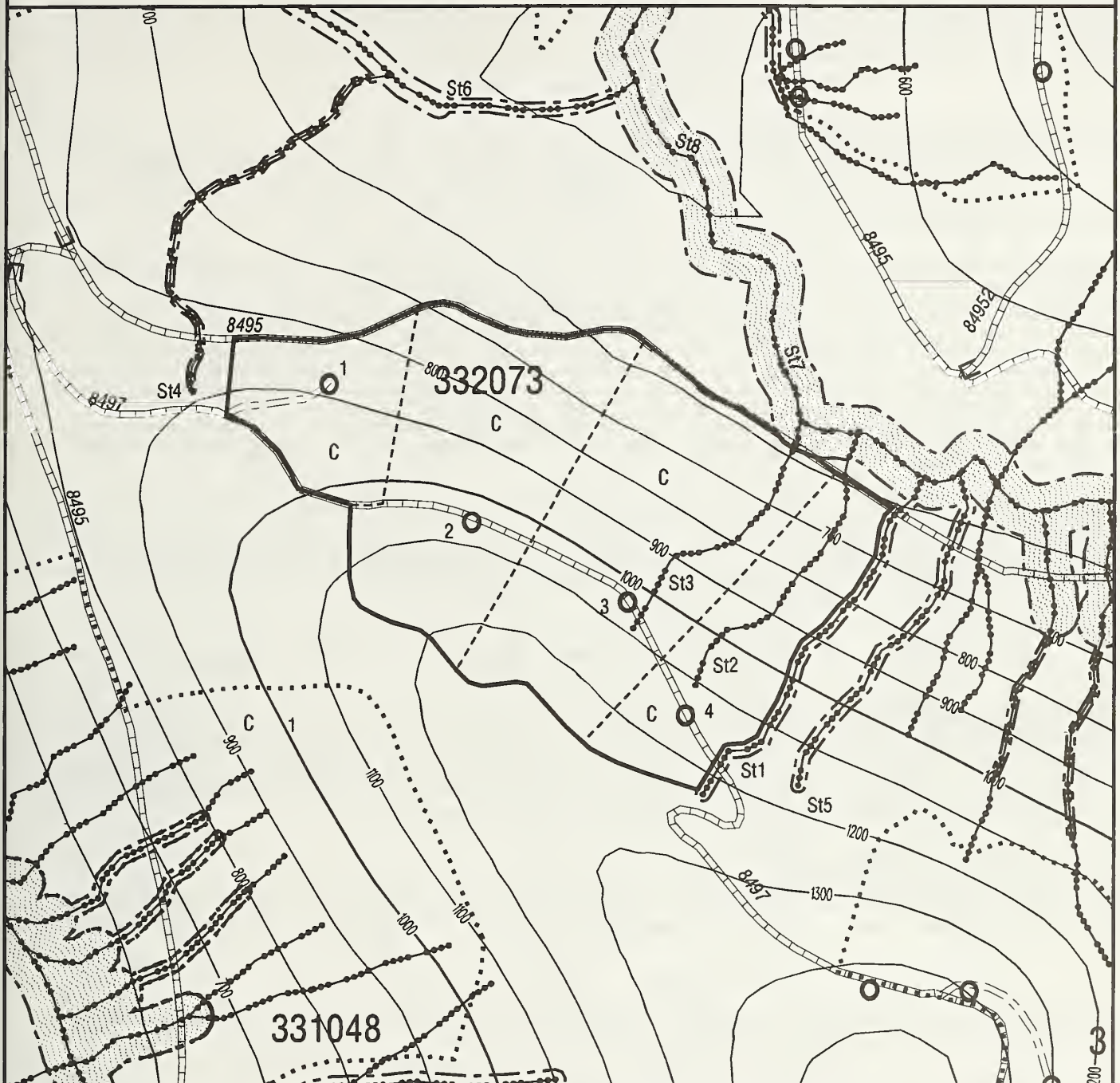


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 87 VCU: 83 UNIT: 332073 ALTERNATIVE(S): 2 4 6 7

ACRES: 77.32 TOTAL NET MBF: 2382.9 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 149



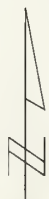
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332074

MAP #: 99

## STAND CHARACTERISTICS

Mid to upper elevation stand, 60% W hemlock series in VC5 and 40% mixed conifer series in VC4. Sawtimber is large in VC5 with average defect and high mortality, and small in VC4, with low defect and average mortality. Stand structure is functionally even-aged, with overstory age 150-250 years. Slopes are moderately steep, with moderately well to poorly-drained soils (not mapped). Understory is blueberry, with shield fern in VC6 and skunk cabbage and lady fern in VC4. Advanced regeneration is common; regeneration potential is high to moderate. Cedar decline is present in VC4.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area is suitable for heavy partial cut. Concerns for soils need to be addressed in layout of harvest systems. Slackline yarding. Tailtrees required. Directional falling in NE and NW to avoid steep slopes. Skyline extensions through buffers required. Fall away from buffers. 700 feet of temporary road required.

**Visual Resource Management:** VQO is Maximum Modification; seen in background from visial priority travel route.

**Soils / Geology:** Unstable soils with recent slide adjacent to the original west boundary (but not in the unit). Steep slope break in this area. Areas below the recent slide are very wet, and a considerable amount of blowdown is evident. Unit boundary avoids areas with soil hazards. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 1, 2, 4, 5, 6, 7 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 2a, 4a (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (3) Stream 2b, 4b (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 3 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 4 - Wet soils area at headwater of stream, recommend soils scientist review during layout. BMP 13.9.

**Wildlife:** Snags and green reserve trees will provide structural quality to wildlife habitat. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Minimize sediment yield to fish streams (Directional felling away from the Class II stream on the east boundary is recommended. Skyline rigging across this buffer will be required).

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The original boundary as delineated on the paper plan was modified after reconnaissance and field review to address soil concerns. The boundary was pulled back from the steep, wet, and unstable areas on the west and northwest. The remaining unit follows the buffered edge of the Class II stream on the east, and generally conforms to logical timber types and harvest settings.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to benefit timber production. No significant changes in productivity are expected in the cedar decline areas.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

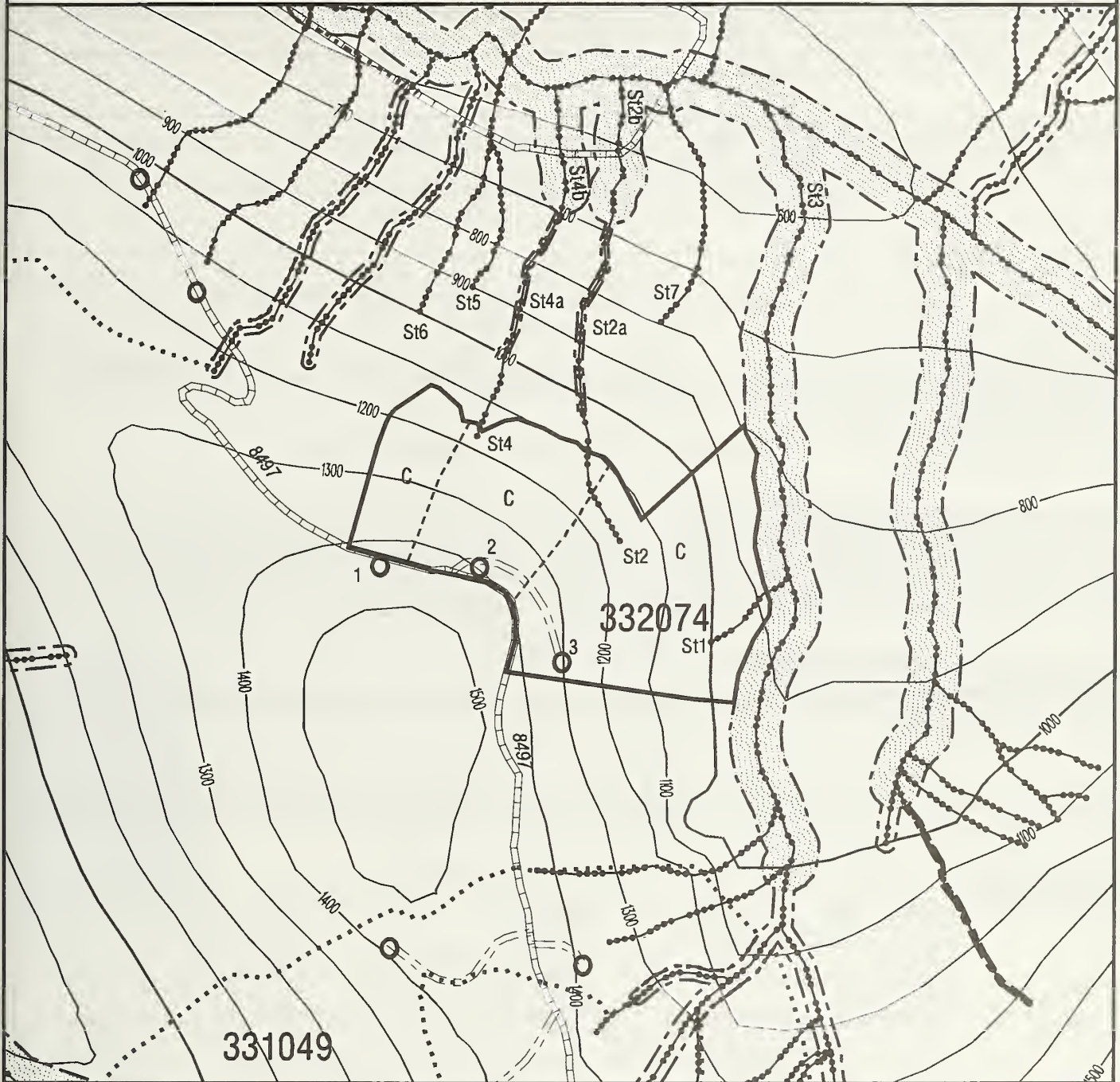


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 99 VCU: 83 UNIT: 332074 ALTERNATIVE(S): 2 4 6 7

ACRES: 33.39 TOTAL NET MBF: 547.6 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 159



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 33301

MAP# 132

## STAND CHARACTERISTICS

Mid elevation stand, 3/4 W hemlock series in VC5, medium sawtimber with average defect and mortality, and 1/4 mixed conifer series in VC4, small sawtimber with very high defect and low mortality. Stand structure is uneven with overstory age 300+ years. Slopes are moderate and soil drainage is poor and moderately poor. Understory is blueberry with skunk cabbage, 40-90% understory cover. Advanced conifer regeneration, mostly WH, is abundant in most of the unit, occupying 30-40% cover; regeneration potential is low to moderate. Windthrow and dwarf mistletoe are management concerns.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Heavy partial cut is not feasible. Suitable for small slackline and running skyline. Artificial anchors required. Six stations of temporary road will be needed, including 200ft. of full-bench construction. Snags are a management concern.

**Visual Resource Management:** Area is over a ridge to the southwest of the head of Sandborn Canal, and is not in the view of the small boat route.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** No concerns.

**Wildlife:** Snags and reserve trees provide vertical structure habitats for wildlife. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Regeneration of understocked stand with a diseased, mature overstory for a programmed timber yield.
- (2) Improve timber volume and value productivity.
- (3) Mitigation of background visual impact on ferry route.
- (4) Provide vertical structure and cavity nesting habitat within regeneration units where not in conflict with logging systems feasibility.
- (5) Provide a programmed timber yield.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcutting and clearcutting with reserves, the selected alternatives, best meet the integrated resource objectives for this unit. Using a combination of these methods, the stand is efficiently regenerated, and mistletoe infection centers are reduced. Logging systems are operationally feasible for leaving scattered reserves, a reserve island on the muskeg, and feathered edges on the west boundary. Reserve trees will provide vertical structure and cavity nesting habitat for wildlife. Using a combination of methods also provides a side-by-side adaptive management companson opportunity. Shelterwood with reserves, group selection, and sanitation salvage are less feasible operationally and economically. Deferring harvest would not provide a timber yield or regenerate a stand with fair to good potential productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Unit boundary location follows the edge of the productive timberland amid a mosaic of low-site and muskeg areas. After field review, the north portion of the unit was excluded due to low productivity and low volume.

### Forest Productivity Activities:

Soil mixing from logging and windthrow of reserve trees, and soil warming from direct solar radiation, will increase biological activity, and thus, productivity. Reduction of dwarf mistletoe is expected to increase the growth rate of the new stand.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if > 700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 132 VCU: 89 UNIT: 33301 ALTERNATIVE(S): 4 7

ACRES: 44.47 TOTAL NET MBF: 805.6 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 55 ROLL NO.: 684 PRINT NO.: 204



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPIARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 333078

MAP #: 42

## STAND CHARACTERISTICS

Low elevation stand on the west side of a small ridge above Port Houghton, upridge from Unit 333077. Slopes are moderate to steep, with west to southwest aspects. Soils are relatively stable. The stand is uneven-aged old-growth type throughout. Windthrow potential is low. Overstory ages generally exceed 300 years, with the lower stand strata ranging from old, overtopped trees to saplings and seedlings that established in gaps. Species composition is distinctly separated into two forest types: (1) Western Hemlock (VC5), with hemlock and Sitka spruce; and (2) mixed conifer (VC4), with hemlock and yellow cedar, uneven-aged and is a mixture of, classed as a low productivity mixed conifer-western hemlock series. Plant associations range from western hemlock/blueberry to hemlock/blueberry-rusty menziesia. Some of the hemlock is infected with dwarf mistletoe. Regeneration potential is moderate on the steeper ground typified by VC5, with some of the better-drained soils. In the mixed conifer areas, which are somewhat flatter, soils are more poorly drained, and regeneration potential tends to be low.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** The area is not suitable for partial cutting. Snag retention constitutes a safety hazard. Skyline. Guyline extensions req'd on one landing. Skyline must be rigged thru buffer. Tail trees req'd. Multiple stump anchors. Spec. road # 849631 crosses class 1 stream w/bridge. 350 feet of temporary road required.

**Visual Resource Management:** VQO is Partial Retention, as viewed in the background from the visual priority travel route. Orientation of the unit tends to screen it from direct view.

**Soils / Geology:** No concerns identified.

**Fisheries / Watershed:** (1) Stream 3 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 1-2 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Leaving snags and green trees would provide vertical structural habitat. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns were noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing stream.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves was selected because: (1) It provides a high volume return from a stand that is past its peak productivity. Since reserve trees are selected from green cull volume, most of the net merchantable volume is available for harvest. (2) Reserve trees and shaping of the harvest unit will meet VQO. (3) Reserve trees are culls, which provide high-quality vertical and cavity nesting habitat structure. (4) Many of these cull reserve trees will blow down, providing important soil functions and seedbed for spruce. Other Alternatives: Clearcut and clearcut with reserves would not meet VQO, and would not provide as well for wildlife structural habitat. Group selection is not feasible with the logging system. Defer would not take advantage of timber yield and opportunity to replace the stand with a more vigorous stand.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The southwest boundary of the unit conforms to the edge of the buffered Class I stream. Other unit boundaries conform to logical logging limits and type boundaries.

### Forest Productivity Activities:

Soil mixing from logging and soil warming from direct solar radiation will increase biological activity, and thus, productivity. Reduction of dwarf mistletoe will increase the productivity of the regenerated stand.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 42 VCU: 83 UNIT: 333078 ALTERNATIVE(S): 4 6 7

ACRES: 27.99 TOTAL NET MBF: 376 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 171



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

St1 STREAM ID IN NARRATIVE

□ ROAD BEGINS

○ 1 LANDING &amp; NUMBER

★ EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 333081

MAP #: 63

## STAND CHARACTERISTICS

Medium elevation stand on the east side of a ridge one drainage to the west of Sandborn Canal. Slopes are gentle, and soils are stable. The stand is an uneven-aged mixed conifer old-growth type, with a small inclusion of low site. Windthrow potential is moderate. Overstory ages generally exceed 300 years, with the lower stand strata ranging from old, overtopped trees to saplings and seedlings that established in gaps. Species composition is predominantly western hemlock and mountain hemlock, with a substantial component of yellow cedar and Sitka spruce. Plant associations range from mixed conifer/blueberry/skunk cabbage to mixed conifer/blueberry/deer cabbage. Regeneration potential is low for spruce and yellow cedar.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area is suitable for heavy partial cut in east part of unit. Multiple stump anchors req'd.

**Visual Resource Management:** VQO is Maximum Modification as viewed from the small boat route. Although cumulative effects of harvesting multiple units is a concern, this unit is of lesser concern, due to partial screening from topography and adjacent stands of timber.

**Soils / Geology:** No concerns were noted.

**Fisheries / Watershed:** (1) Streams 1-Z - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (2) Stream 8 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 9 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Streams 10 and 11 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Leaving snags and green trees will provide vertical structural habitat. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit follows logical harvest system layout and timber types. Lower elevation boundaries, located on the eastern side of the unit, tie into a transition to low site and muskeg, the more poorly-drained areas with lower productivity. The original northwest extension to the unit was dropped after field review and analysis, resulting in a lower impact on visual quality.

### Forest Productivity Activities:

Soil mixing from logging and soil warming from direct solar radiation will increase biological activity, and thus, productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

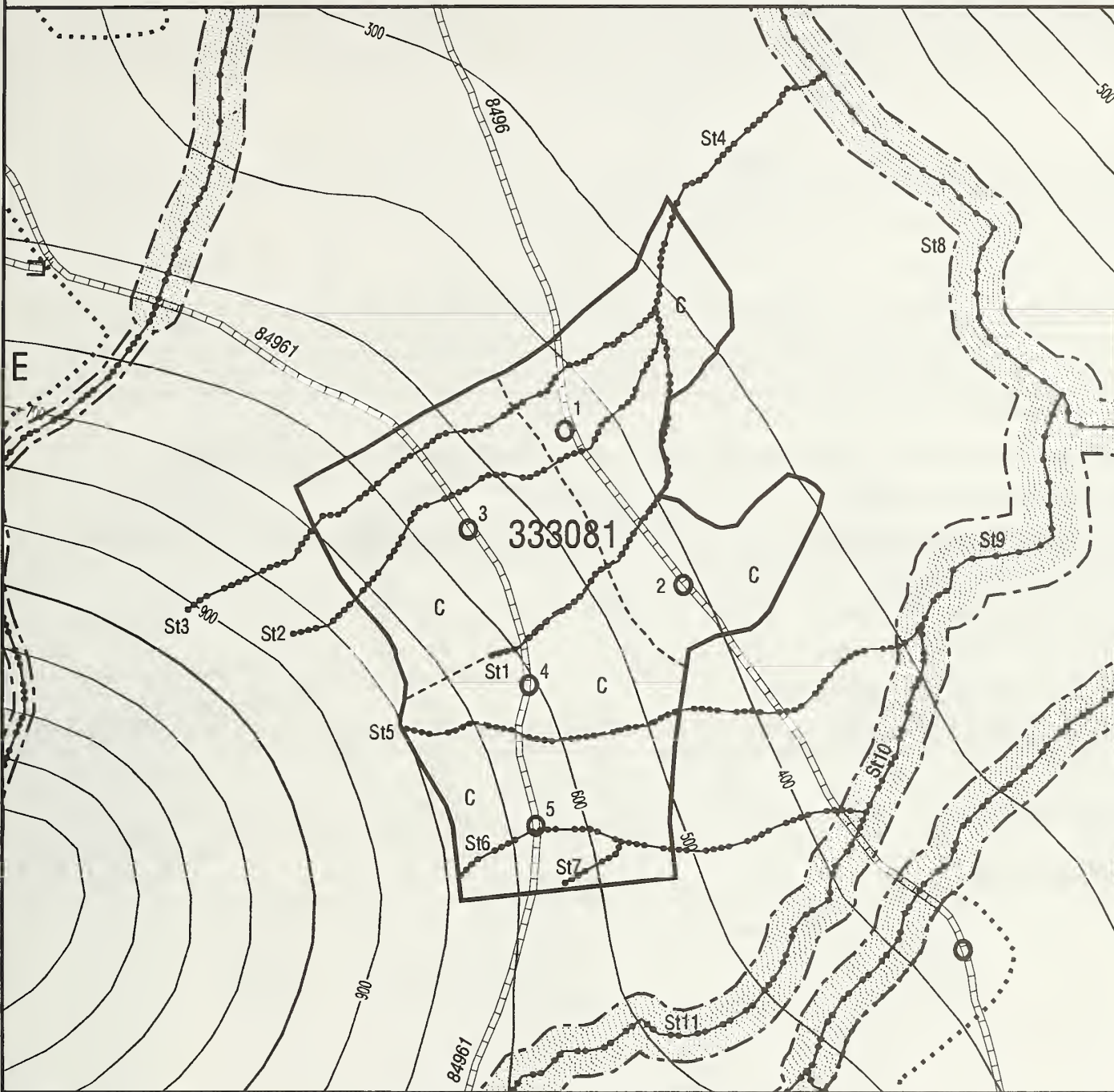


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 63 VCU: 83 UNIT: 333081 ALTERNATIVE(S): 2 4 5 6 7

ACRES: 74.54 TOTAL NET MBF: 906.7 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 208



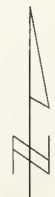
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 333083

MAP #: 76

## STAND CHARACTERISTICS

A moderately-sloping mid-elevation stand extending from upper third to toe-slope, west of Sandborn Canal. Susceptibility to disturbance from wind or mass wasting is moderate. The stand is an uneven-aged composite of western hemlock and mixed conifer forest series. Overstory ages exceed 200 years, with the lower stand strata ranging from old, overtopped trees to saplings and seedlings that established in gaps. Species composition is predominantly western hemlock and mountain hemlock, with low stocking of yellow cedar and Sitka spruce. Plant associations range from mixed conifer/blueberry to western hemlock/blueberry/skunk cabbage. Regeneration potential is moderately low. Many of the trees are defective, mostly due to red belt fungus and breakage.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area is suitable for heavy partial cut. Snag retention creates human safety hazard during logging and subsequent operations. One temporary road required.

**Visual Resource Management:** VQO is modification as viewed from the visual priority travel route in Port Houghton.

**Soils / Geology:** No concerns noted.

**Fisheries / Watershed:** (1) Streams 1 and 6 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (2) Streams 2 and 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Streams 4 and 5 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Snags and reserve trees provide vertical structure habitats for wildlife. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- 1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish-bearing streams.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The northwest boundary of the unit follows a type change to low site as well as the buffer along the Class II stream in the northernmost corner. The northeast portion of the unit was also established along a low-site boundary. Other boundaries conform to logical logging limits and timber types.

### Forest Productivity Activities:

Soil mixing from logging and soil warming from direct solar radiation will increase biological activity, and thus, productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

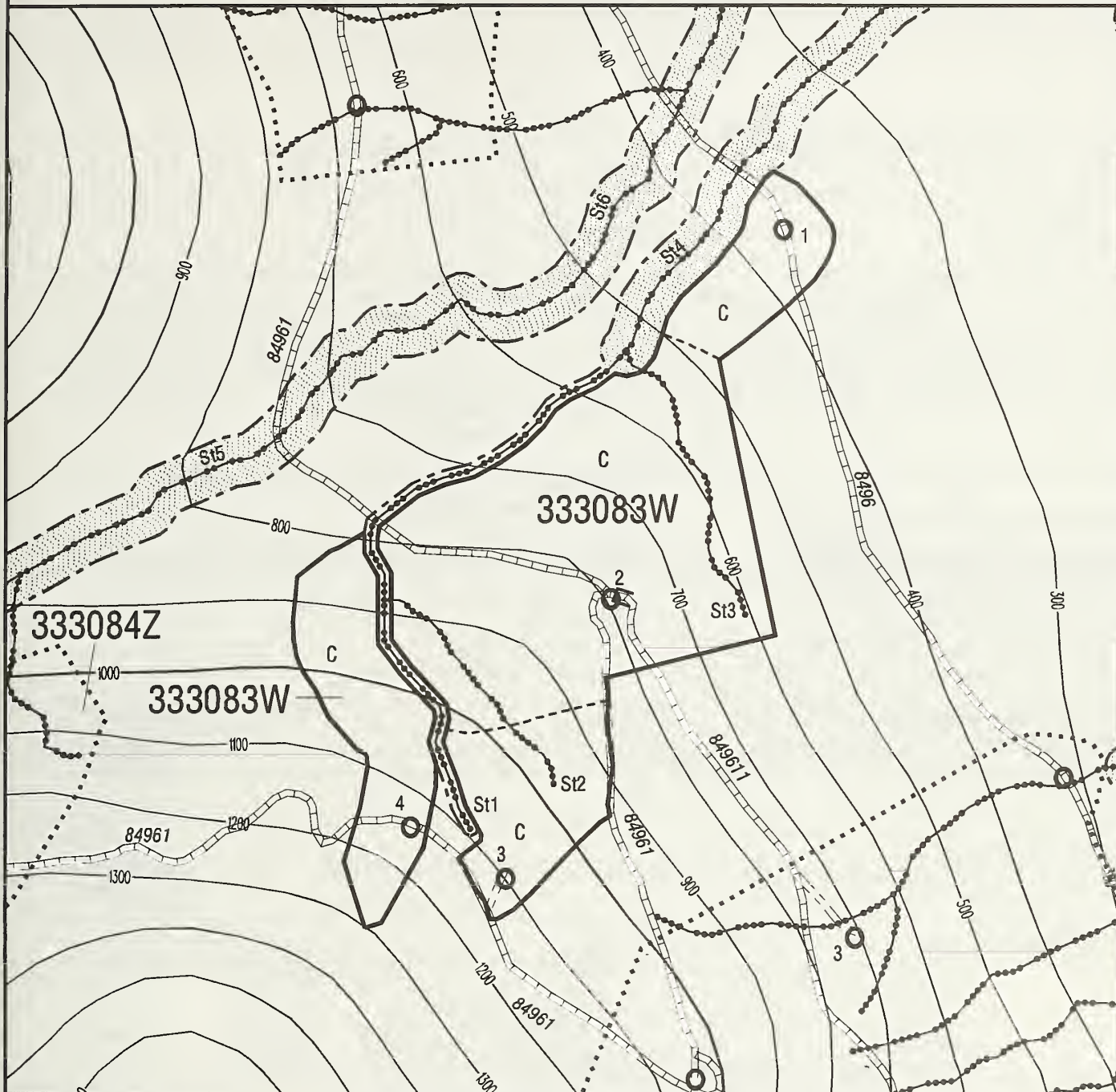


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 76 VCU: 83 UNIT: 333083W ALTERNATIVE(S): 2 4 5 6 7

ACRES: 62.56 TOTAL NET MBF: 1389.2 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 173



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 333084

MAP #: 90

## STAND CHARACTERISTICS

A moderately-sloping mid-to-upper elevation stand extending across a saddle in a ridge west of Sandborn Canal. The stand is an uneven-aged mixed conifer forest series. Overstory ages exceed 200 years, with the lower stand strata ranging from old, overtopped trees to saplings and seedlings that established in gaps. Species composition is predominantly western hemlock, mountain hemlock, and yellow cedar, with low stocking of Sitka spruce. Most common plant associations are mixed conifer/blueberry/skunk cabbage and mixed conifer/blueberry. Regeneration potential is moderate for hemlock but low for yellow cedar and spruce. Principal damage agents are windthrow, snow breakage, and decay fungi.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Stand is suitable for heavy partial cut. Snags are safety concern/constraint. Skyline. Tailholds outside unit and in buffers. 200 feet of temp. road construction req'd. Switchback area past setting #1 appears to be on unstable soils.

**Visual Resource Management:** VQO is Maximum Modification. Most of the unit is not seen from midground or background of visual priority travel route. Areas that are viewed are irregular in shape.

**Soils / Geology:** Avoid Class III streams. BMPs 13.5 and 13.9 applicable. Check road corridor past Setting #1.

**Fisheries / Watershed:** (1) Streams 7 and 13 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Stream 2 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Streams 2a, 4, 7a, 8, 9, 13a, 17 and 19-21 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (4) Streams 1, 3, 5, 6, 9a, 9b, 10-12, 14-16 and 18 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c.

**Wildlife:** Opportunities for retaining snags and green trees for structural habitat diversity. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- 1) Convert this overmature stand to a more vigorous young stand.
- 2) Provide a programmed timber yield.
- 3) Meet Visual Quality Objectives for the unit.
- 4) Retain biological structures for wildlife habitat.
- 5) Maintain or improve site productivity.
- 6) Reduce sediment into fish bearing streams.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The boundary of the unit was placed along the top of the slope break to prevent slope failure into the Class III stream that occurs northeast of the unit. Boundaries conform to logical logging limits, timber types and stream buffers. North boundary buffers Class II and III streams. Class IIIs divide unit into three blocks: X, Y, Z. South boundary is along ridge and another Class III stream.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to increase timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

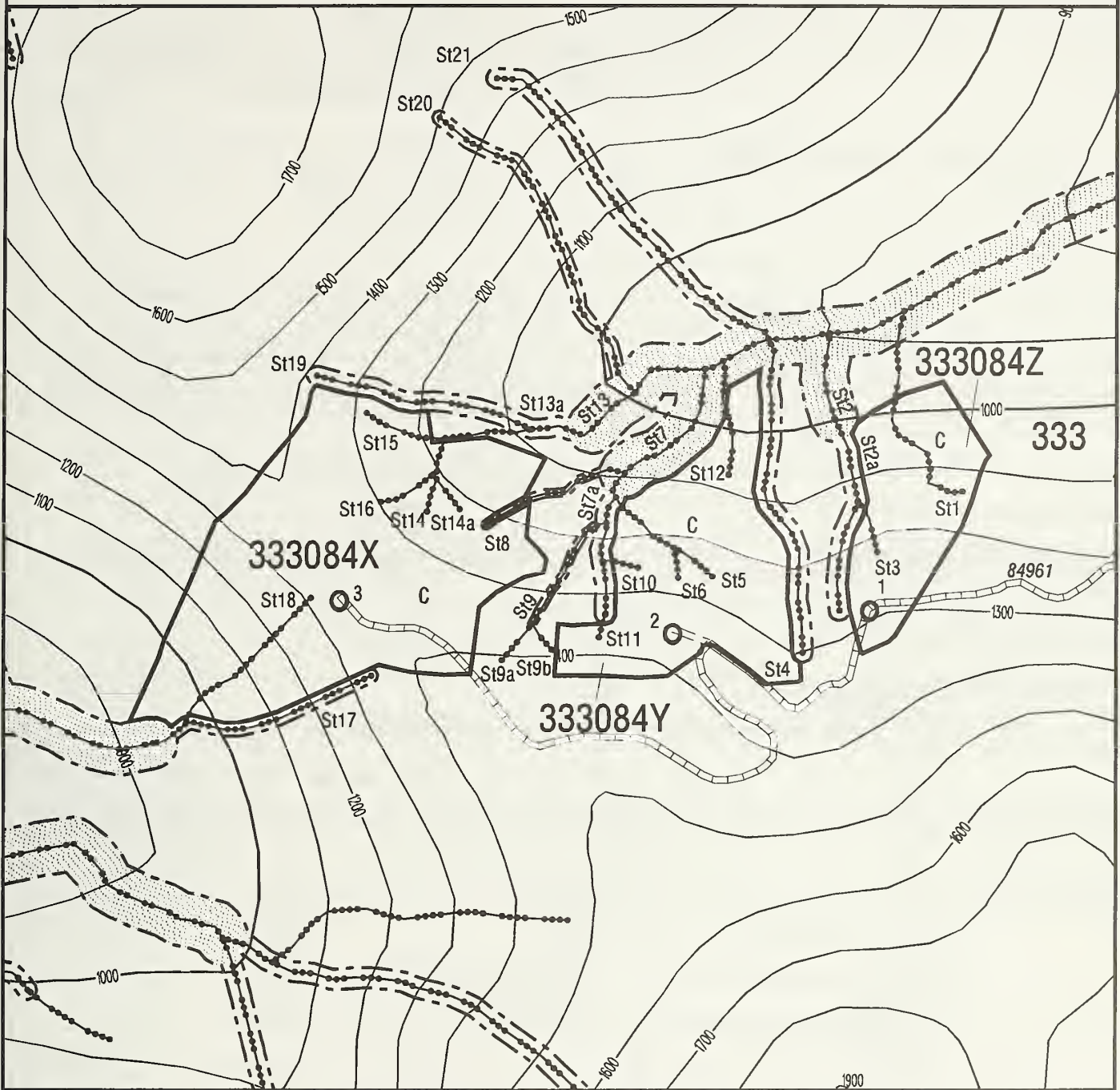


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 90 VCU: 83 UNIT: 333084 ALTERNATIVE(S): 2 4 5 6 7 SETTING #S 2 3 ARE HE IN ALTS. 2 4

ACRES: 55.59 TOTAL NET MBF: 1235.8 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 174



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 333085

MAP #: 91

## STAND CHARACTERISTICS

A moderately steep mid-elevation stand, extending from midslope to the toe of an east-facing ridge. Susceptibility to disturbance from wind or mass wasting is moderate. The stand is an uneven-aged composite, with western hemlock forest series in the more productive VC6 type, and mixed conifer in the VC4 and low site areas. Overstory ages exceed 300 years, with the lower stand strata ranging from old, overtopped trees to saplings and seedlings that established in gaps. Species composition is predominantly western hemlock, with minor components of mountain hemlock and Sitka spruce. Plant associations include western hemlock/blueberry/shield fern in VC6 and mixed conifer/skunk cabbage/lady fern in the VC4 areas. Regeneration potential is moderately good in VC6 and poor in other areas. Much of the stand is defective, primarily due to red belt fungus and breakage.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area is suitable for heavy partial cut. Snag retention creates human safety hazard during logging and subsequent operations. Skyline. 700 feet of temporary roads needed.

**Visual Resource Management:** VQO is Maximum Modification as viewed from the visual priority travel route in Port Houghton.

**Soils / Geology:** No concerns noted. Steep slopes and v-notches deleted. BMP 13.5 applicable.

**Fisheries / Watershed:** (1) Stream 1 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (2) Streams 2-4 and 4a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 Sec. 3c. (3) Streams 5-9 (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 10 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Snags and reserve trees provide vertical structure habitats for wildlife. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Boundaries tie in with low site and muskeg transitions in the toe-slopes - the areas which are more poorly drained and boggy. Other boundaries conform with logical logging limits, timber type transitions, and stream buffers.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to increase timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

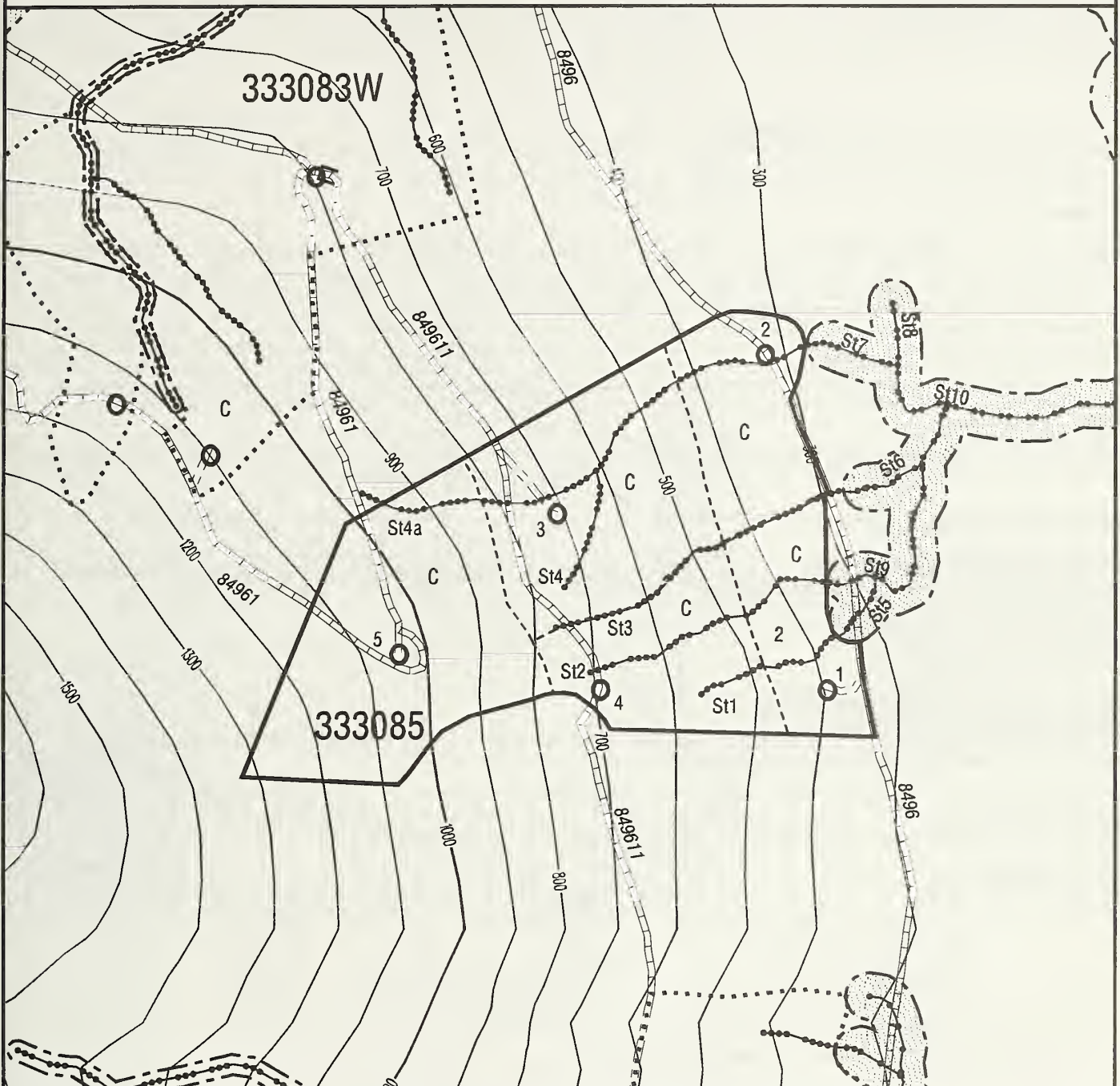


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 91 VCU: 83 UNIT: 333085 ALTERNATIVE(S): 2 4 5 6 7

ACRES: 72.9 TOTAL NET MBF: 1795.6 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 54 ROLL NO.: 684 PRINT NO.: 183



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 333086

MAP #: 111

## STAND CHARACTERISTICS

A moderately steep low-elevation western hemlock stand, extending upwards from the toe-slope of an east-facing ridge. Soils are relatively stable. Structurally, the stand is an uneven-aged composite in western hemlock VC6 type. Overstory trees are about 300 years old, with the lower stand strata ranging from old, overtopped trees to saplings and seedlings that established in gaps. Western hemlock/blueberry is the predominant plant association. Regeneration potential is high. Much of the stand is defective, primarily due to red belt fungus and breakage.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Snag retention would create human safety hazard for woods workers. Skyline logging. Three temporary roads totalling 1000 feet required.

**Visual Resource Management:** The area is not seen from the visual priority travel route.

**Soils / Geology:** No concerns listed.

**Fisheries / Watershed:** (1) Streams 4 and 5a - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the side-slope breaks. Trees felled to lead for yarding away from stream courses. Apply BMP 13.16 sec. 3b. (2) Streams 2, 3, 5 and 6 (FS) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 1b (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (4) Stream 1 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greater of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (5) Stream 1a (MM) - See Class I and II overall prescription in the Resources Opportunities and Constraints.

**Wildlife:** Snags and reserve trees provide vertical structure habitats for wildlife. Some opportunities will be used in this unit to retain vertical structure. Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** No concerns listed.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

Several boundary adjustments were made to protect streams and other resource values. The south boundary follows the buffer along the Class I/II stream. In addition, all boundaries follow the general type change that defines this overmature western hemlock stand.

### Forest Productivity Activities:

Soil mixing from logging and soil warming from direct solar radiation will increase biological activity, and thus, productivity.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept.and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy.& reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if>700 tpa, VC5+,resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

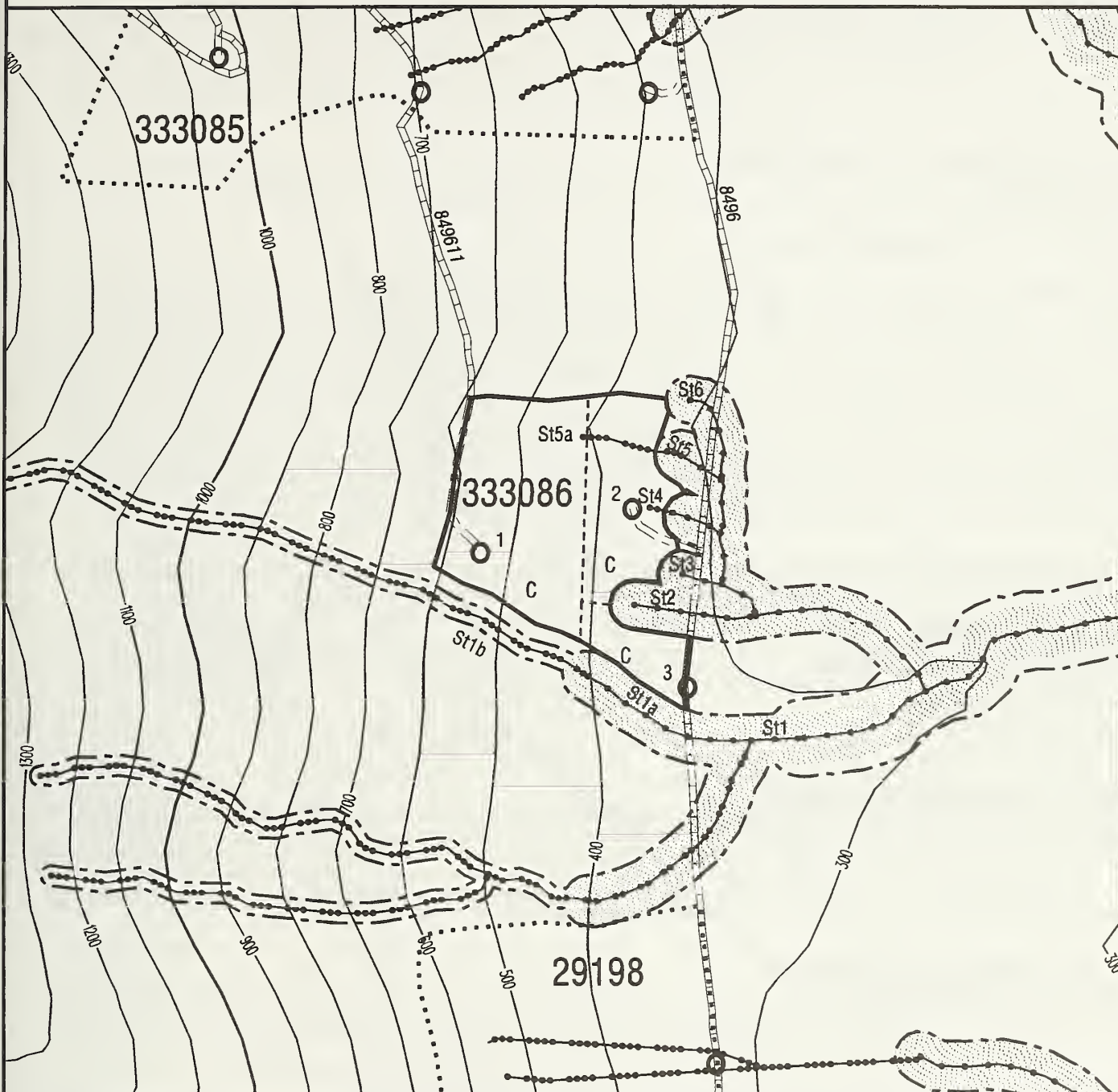


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 111 VCU: 83 UNIT: 333086 ALTERNATIVE(S): 2 4 5 6 7

ACRES: 20.25 TOTAL NET MBF: 679.3 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 54 ROLL NO.: 684 PRINT NO.: 182



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 333093

MAP #: 117

## STAND CHARACTERISTICS

Lower elevation stand of western hemlock, Sitka spruce, and yellow cedar behind the ridge west of Sandborn Canal. Slopes are generally moderate, but cliffs were found during field reconnaissance. The mass failure potential is low. Soil drainage is poor on benches and shallow slopes. Risk of windthrow is high, due to poor vigor and condition of the trees, as well as high water table on portions of the stand. Structurally, the area is an uneven-aged western hemlock-yellow cedar composite with mixed conifer type, VC4. Regeneration potential is medium. Much of the stand is defective, primarily due to red belt fungus and breakage. Overstory trees are highly variable in age and condition, generally well in excess of 200 years old. The lower stand strata range from old, overtopped trees to saplings and seedlings that established in gaps. Understory advance growth is highly variable in quality. Plant associations include mixed conifer/blueberry/skunk cabbage and western hemlock-yellow cedar/blueberry/skunk cabbage.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Area is suitable for heavy partial cutting. Snag retention is a safety problem for woods workers. Tailtrees required. 1000 feet of temporary road required. Helicopter logging in the south.

**Visual Resource Management:** The area is not seen from the visual priority travel route.

**Soils / Geology:** No concerns noted. BMPs 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section in Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Stream 1 (MM) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b and BMP 13.19. (3) Streams 2 and 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (4) Stream 5 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Streams 6 and 7 (PA) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial harvest within the Riparian Management Area, defined as greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 100 feet. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (6) Stream 8 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** Snags and reserve trees provide vertical structure habitats for wildlife. Clearcut with reserves was adopted for this unit. Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a more vigorous young stand.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Retain biological structures for wildlife habitat.
- (5) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves is the selected alternative because: It contributes a high proportion of stand volume to the programmed harvest. Reserve tree selection provides defective hemlock, spruce, and yellow cedar for vertical and cavity nesting habitat structure, seed sources for the higher valued timber species, a source of blowdown for ecological functioning, and visual softening of harvest impacts. Logging systems feasibility is good for a heavy partial cut. Although clearcutting would result in increased yield and be more efficient for logging, it would not retain wildlife habitat quality as well as clearcutting with reserves. Shelterwood with reserves, selection, and sanitation salvage are of questionable engineering feasibility in this unit without shifting to helicopter yarding, poorer economic choices, and would not improve future timber productivity as efficiently as the selected alternative. Defer would not provide a timber yield and would not regenerate a relatively low impact unit.

## INTEGRATED MANAGEMENT PRESCRIPTION

### INTEGRATED MANAGEMENT PRESCRIPTION

Much of the northern boundary follows a transition to muskeg. The northwest edge follows the slope above the stream buffer. Other boundaries follow logical timber type and logging system boundaries. All setting lines follow streams except setting 3. During final unit layout, an additional landing should be considered at the eastern third setting boundary between settings 4 and 1. This landing can be accessed by a temporary road.

### Forest Productivity Activities:

Soil mixing from logging and soil warming from direct solar radiation will increase biological activity, and thus, productivity. Windthrow mounds from reserve trees that blow over will provide opportunities for restoring or maintaining basic soil functions, particularly the mixing of organic and mineral strata.

## MONITORING PLAN

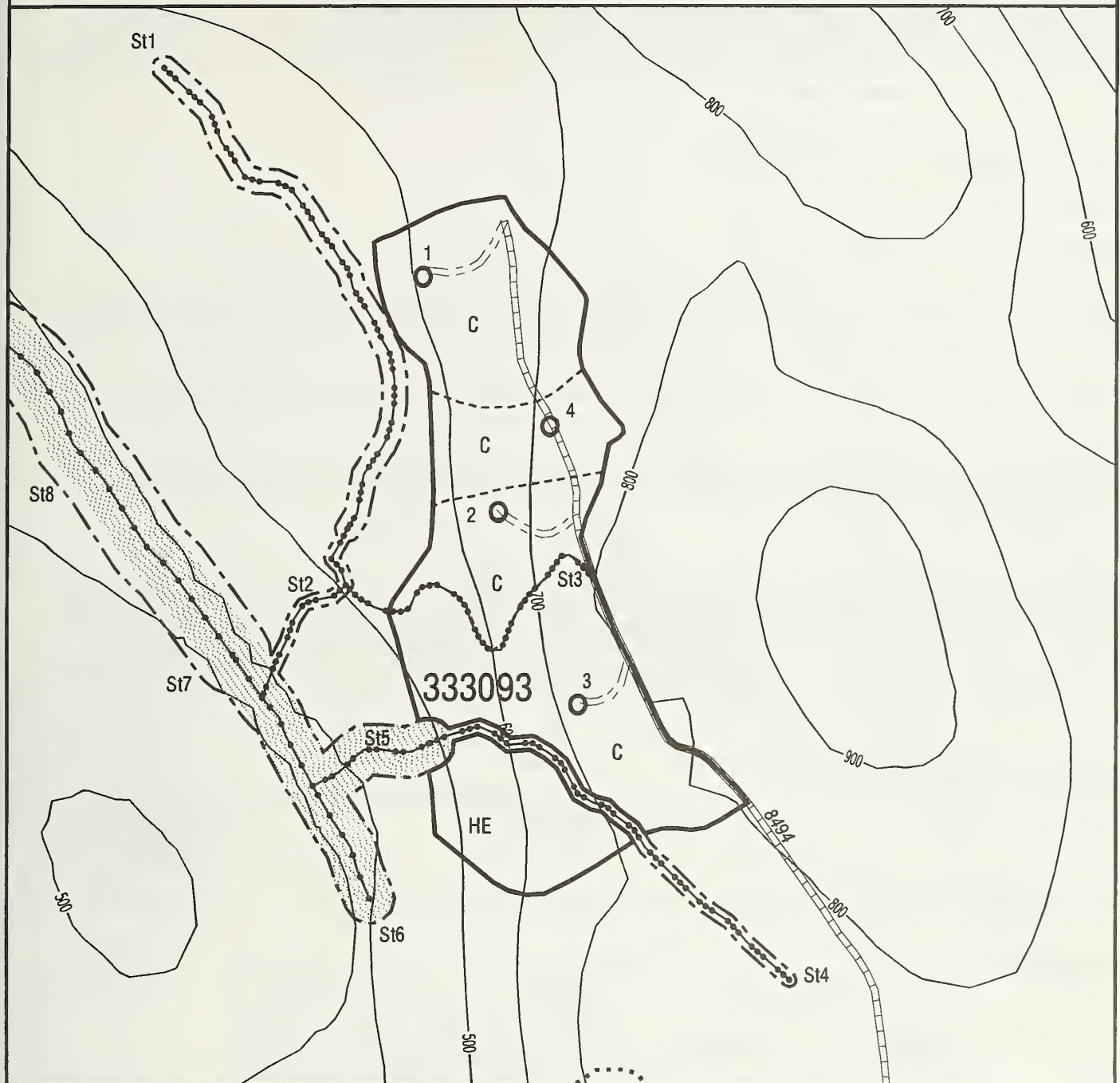
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 117 VCU: 83 UNIT: 333093 ALTERNATIVE(S): 4

ACRES: 53.46 TOTAL NET MBF: 560.9 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 55 ROLL NO.: 684 PRINT NO.: 203



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 381131

MAP# 2

## STAND CHARACTERISTICS

High-elevation stand, just below ridgetop, moderately steep, on SE aspect, with broken steep topography below 2100 ft.. Class III stream in V-notch bisects the unit and borders the south edge of the west extension. Muskeg borders the top of the unit. Risk of mass movement is generally moderate. Mountain hemlock/Vaccinium plant association. Functionally even-aged overmature mountain hemlock, 250-350 years old, with scattering of Sitka spruce. A patch of younger mountain hemlock (~110 yrs. old) at north end of unit was deleted from treatment area. Low to moderately productive site, Vol. Class 4 and 5. Average defect. Indications of old windthrow throughout stand; high risk to future windthrow. High regeneration potential.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Nearest possible landing on Goldbelt road # 2214. Helicopter logging.

**Visual Resource Management:** Not seen - no constraints.

**Soils / Geology:** Portion of area initially classified as Class 4 soils; after field examination, reclassified as Class 3. BMPs 13.2 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 5 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Streams 1-3 and 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** No special concerns noted. Opportunity for reserving live trees and snags for habitat structural diversity. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** None noted.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

**Clearcut with reserves** best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) Most of the net volume available will be harvested. (3) The VQO of Maximum Modification to be met. (4) Fish habitats downstream from the unit will be maintained through protection Class 3 stream afforded by helicopter logging. (5) Site quality will be maintained, due to increased soil functioning. Many of the reserve trees will blow down, creating favorable soil conditions for reduction of podzolization and favorable seedbeds for spruce. Reserve trees also provide vertical diversity for cavity nesting habitat and seed sources for higher value timber species. (6) Helicopter logging will allow the unit to be logged without road building, which is not cost effective for this unit. In total, the selected alternative meets all integrated resource objectives.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The east boundary was modified to include area declassified from Soil Class 4. Northern portion of unit was dropped due to younger timber and low volume. Western boundary conforms to the ridgetop and edge of muskeg.

### Forest Productivity Activities:

Soil mixing from windthrow of reserve trees is expected to reduce podzol development on limited areas. Exposure of mineral soil on windthrow mounds is expected to provide favorable seedbed for spruce.

## MONITORING PLAN

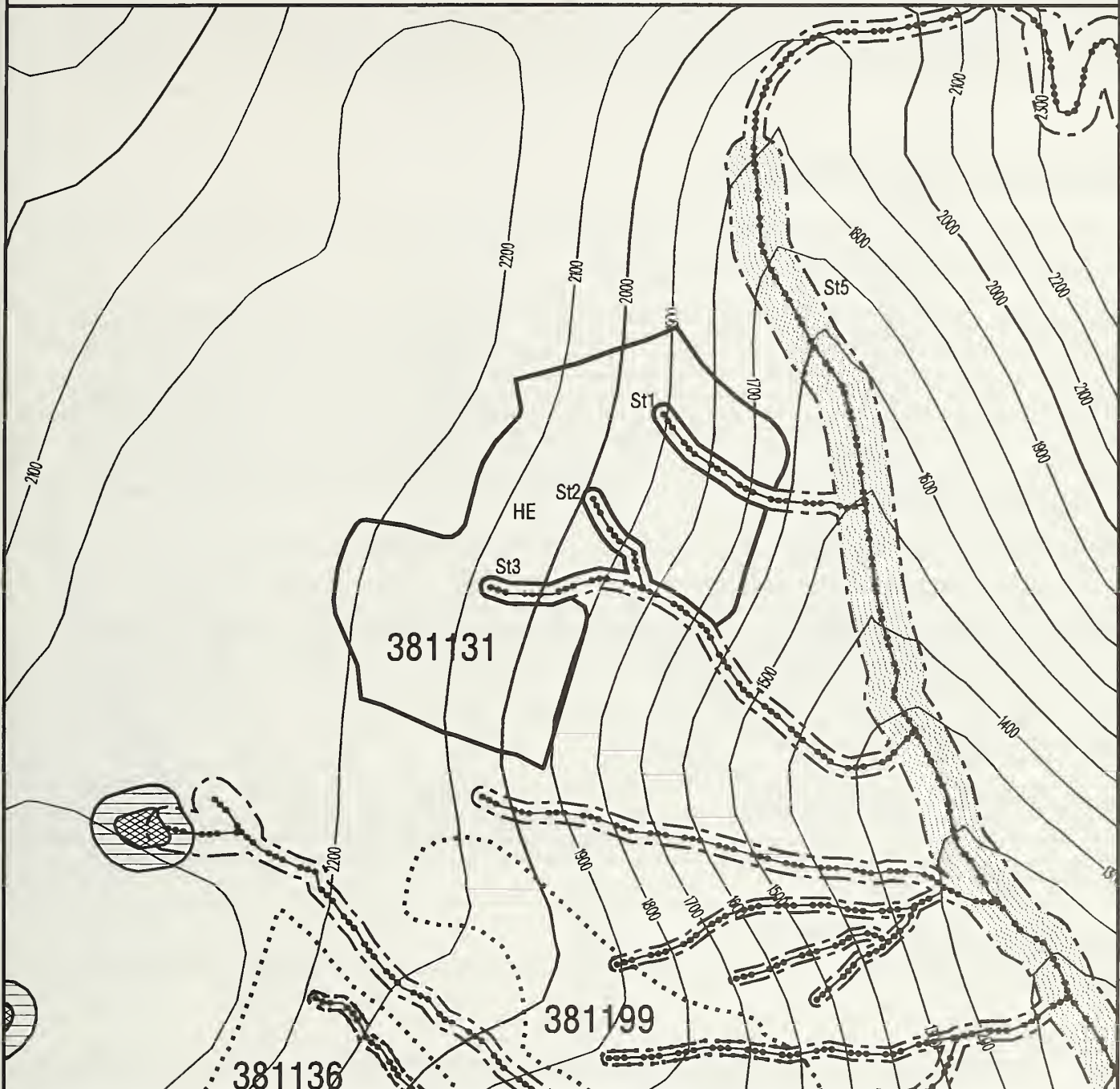
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist



MAP NO.: 2 VCU: 80 UNIT: 381131 ALTERNATIVE(S): 2 3 4 5

ACRES: 33.86 TOTAL NET MBF: 460.1 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 784 PRINT NO.: 34



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

C = CABLE

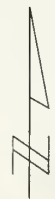
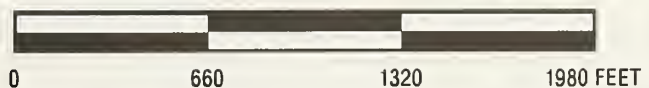
St1 STREAM ID IN NARRATIVE

ROAD BEGINS

LANDING &amp; NUMBER

★ EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 381133

MAP# 3

## STAND CHARACTERISTICS

Lower-slope unit, moderately steep, on W to SW aspect. A Class II stream in a V-notch borders the south boundary. Western hemlock forest type, mixture of western hemlock/Vaccinium and western hemlock/vaccinium-devils club association. Functionally even-aged overmature (300 yrs.+) mixture of mountain hemlock, western hemlock, and scattered Sitka spruce. Some pockets of younger yellow cedar are found in west portion of unit. Low to moderately productive site, mostly Vol. Class 4 and 5, open stocking. Scattered snags and high defect throughout the unit. Little evidence of recent windthrow; moderate risk of windthrow following harvest. Overstory age is generally 350 years and older. Understory vegetation generally dense, with Vaccinium, skunk cabbage, and devils club. Scattered conifer advance growth in poor condition.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter logging. Use Goldbelt road #2215.

**Visual Resource Management:** VQO is Maximum Modification as viewed from background from visual priority travel route in Port Houghton. Concerns for cumulative impact of harvest combined with nearby, older logging on Goldbelt lands. Unit location in valley, oblique to view, helps mitigate visual impact.

**Soils / Geology:** No special concerns were noted. BMPs 13.2 and 13.9 applicable.

**Fisheries / Watershed:** (1) Stream 6 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Stream 7 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Streams 1a, 2a, 5a and 8 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Streams 1, 3 and 4 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (5) Streams 2 and 5 - See Class IV overall prescription in the Resource Opportunities and Constraints section in Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** Retention of some snags and reserve trees would add to structural diversity to the benefit of wildlife. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns were noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats on and adjacent to unit.
- (5) Maintain or improve site productivity.
- (6) Minimize sediment yield to fish bearing streams.
- (7) Split yard at Class III streams.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcutting best meets integrated resource objectives, especially if some reserves can be accommodated. Rationale: (1) Converts unit to more vigorous young stand. (2) Most of the net volume available will be harvested. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Fish habitats will be maintained by buffering Class II stream and protecting V-notches. (5) Site quality will be maintained or improved, due to increased soil functioning. (6) Clearcutting is operationally feasible.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The south boundary of the unit follows the buffered Class II stream. The west boundary was modified to exclude rock bluff and steep slopes. On the east, the boundary was pulled back from the stream buffer.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance will result in increased soil biological activity and decomposition rate, potentially increasing productivity. Natural regeneration of Sitka spruce and yellow cedar by retention of seed trees on unit edges.

## MONITORING PLAN

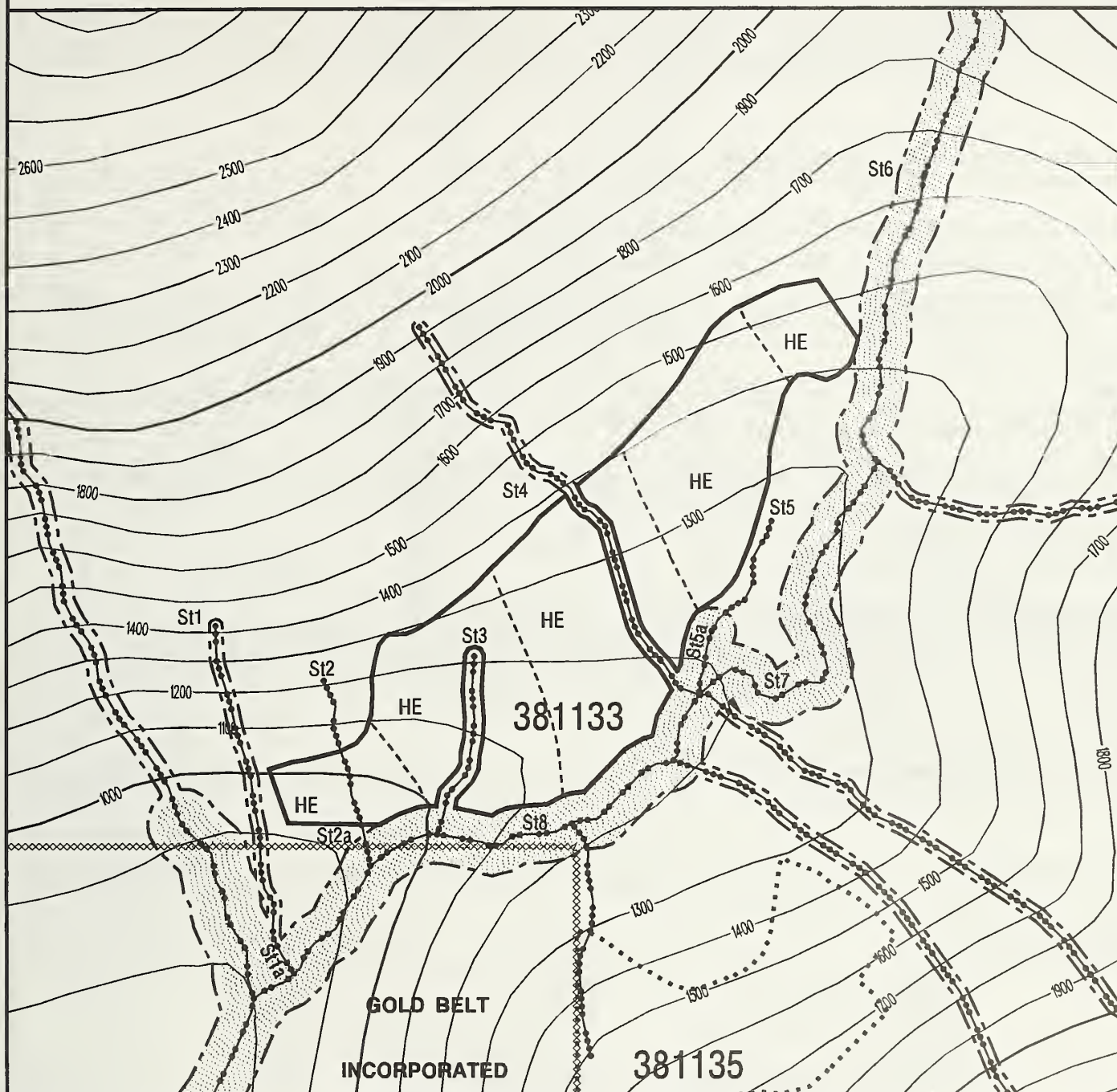
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 3 VCU: 80 UNIT: 381133 ALTERNATIVE(S): 2 3 4 5

ACRES: 42.99 TOTAL NET MBF: 590.1 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 42



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 381135

MAP# 9

## STAND CHARACTERISTICS

Lower-slope unit, moderately steep, on N to NW aspect. A Class II stream passes through the area immediately north of the unit. Lower slopes are steep. Western hemlock forest type, mountain hemlock/Vaccinium plant association. Functionally even-aged overmature (300 yrs.+) mixture of mountain hemlock, western hemlock, and scattered Sitka spruce. Variable productivity within unit; lower elevation extensions Volume Class 4, but mid-unit is Vol. Class 6. High defect throughout the unit. High windthrow risk in upper slopes. Overstory age is generally 300 years and older. Understory contains moderately dense Vaccinium, skunk cabbage, and devils club.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter logging. Use landing at end of Goldbelt road #2215.

**Visual Resource Management:** Most of unit is not seen. VQO is Maximum Modification.

**Soils / Geology:** No special concerns were noted. BMPs 13.2, 13.5 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1 and 3 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section in Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** Retention of some snags and reserve trees would add to structural diversity to the benefit of many wildlife species. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.
- (5) Minimize sediment yield to fish bearing stream.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcutting best meets integrated resource objectives, especially if some reserves can be accommodated on unit edges. Rationale: (1) Converts unit to more vigorous young stand. (2) Most of the net volume available will be harvested. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Fish habitats will be maintained by buffering Class II stream and protecting V-notches. (5) Site quality will be maintained or improved, due to increased soil functioning. (6) Clearcutting is operationally feasible; for the unit as a whole, reserve trees cannot be compatibly retained.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The NW boundary was modified to exclude low volume area. The boundary was otherwise modified to exclude steep slopes and to conform to logical yarding boundaries. The west unit boundary is the boundary of the national forest.

### Forest Productivity Activities:

Soil mixing and warming from logging disturbance will result in increased soil biological activity and decomposition rate, potentially increasing productivity. Natural regeneration of Sitka spruce and yellow cedar by retention of seed trees on unit edges.

## MONITORING PLAN

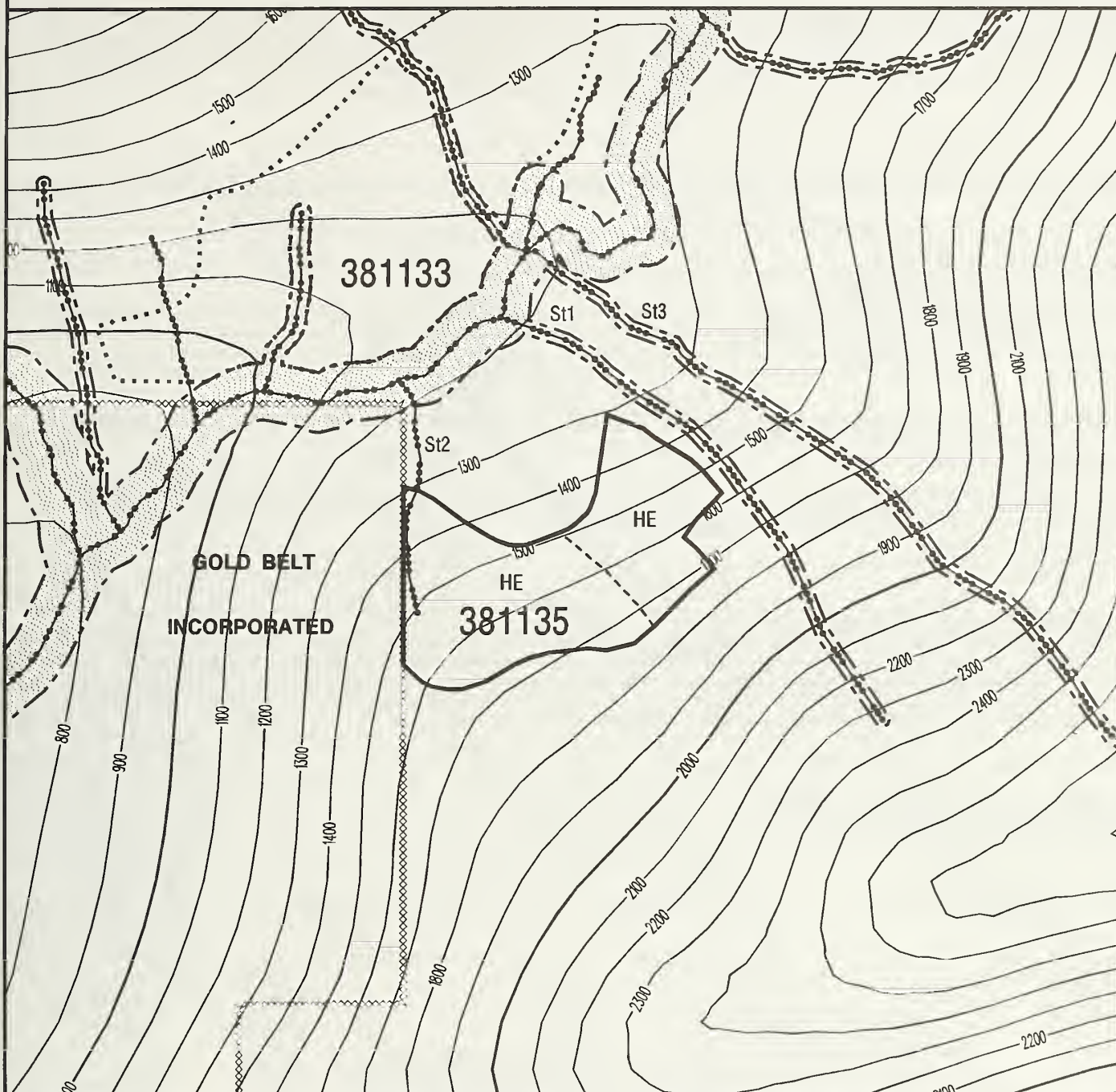
Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 9 VCU: 80 UNIT: 381135 ALTERNATIVE(S): 2 3 4 5

ACRES: 19.99 TOTAL NET MBF: 436.3 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 41



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 381136

MAP# 7

## STAND CHARACTERISTICS

Mid-slope stand, beginning just below ridgeline and extending downslope along Class III stream. Moderately steep, on SE aspect. Muskeg borders the top of the unit. Western hemlock forest type. Upper slopes dominated by mountain hemlock, giving way to western hemlock below 1600 ft. elevation; minor stocking of Sitka spruce throughout. The dominant canopy is generally in excess of 300 years old, with a functionally even-aged structure. Although most of the stand is Volume Class 4, there is appreciable area of high site. Lower sites are primarily the upslope mountain hemlock area, where the timber is highly defective. Little evidence of recent windthrow; moderate risk of windthrow following harvest. Understory vegetation is moderately stocked with Vaccinium, with patches of devils club, skunk cabbage, and deer cabbage.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter logging is more economical for this unit than cable logging because road construction is not required. Use landing along Gold Belt, Inc. road #2212 south of the unit.

**Visual Resource Management:** Area is in the background view of small boat route. VQO of Maximum Modification.

**Soils / Geology:** Sensitive soils along NE and SW boundaries; recommend partial cutting in these areas. BMPs 13.2 and 13.9 applicable.

**Fisheries / Watershed:** (1) Streams 1 and 2 (PA) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined as greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens. Apply BMP 13.16 sec. 3b. (2) Streams 3-8 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** No special concerns noted. Opportunity for reserving live trees and snags for habitat structural diversity. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

**Shelterwood with reserves** best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) More than 80% of net volume available will be harvested. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Fish habitats will be maintained by buffering Class 3 stream and protecting vegetation in the buffered V-notch. (5) Site quality will be maintained or improved, due to increased soil functioning resulting from blowdown and, to some extent, soil warming. Reserve groups will provide structural diversity and ecological functions. (6) Helicopter logging will be most economically feasible, considering effects on reduced road construction. All told, the selected alternative meets the integrated resource objectives.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

A portion of the boundary was designed to exclude Class 4 soils and a Class III stream.

### Forest Productivity Activities:

Soil mixing from windthrow of reserve trees is expected to reduce podzol development on limited areas. Exposure of mineral soil on windthrow mounds is expected to provide favorable seedbed for spruce.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept. and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
	*Note that PCT is probably impractical, due to high amt. of defective logs on ground w/ heli. logging.		

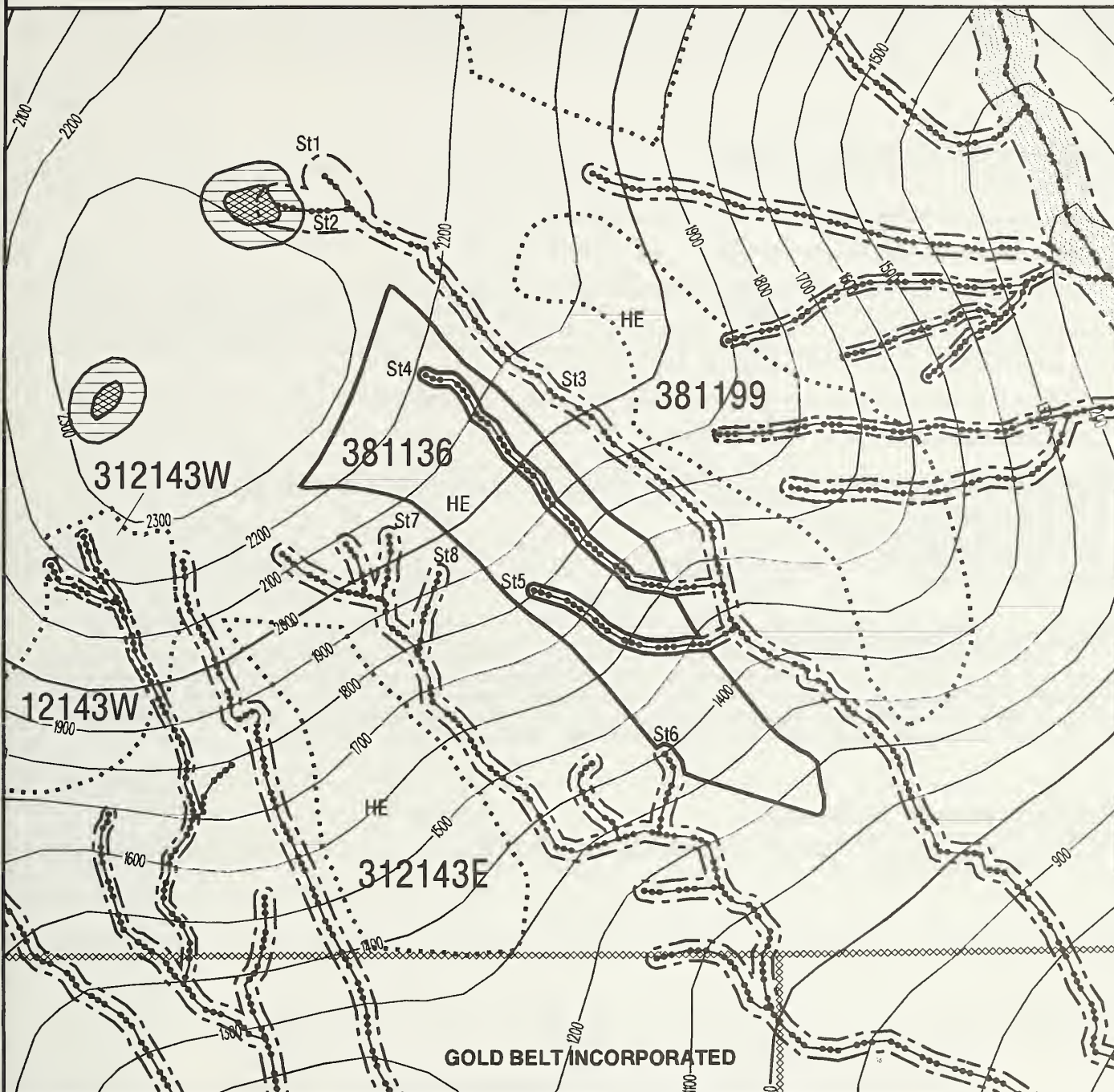


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 7 VCU: 80 UNIT: 381136 ALTERNATIVE(S): 2 3 4 5

ACRES: 25.95 TOTAL NET MBF: 523.1 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 784 PRINT NO.: 35



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
ROAD BEGINS  
LANDING & NUMBER  
EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #:

381138

MAP#

16

## STAND CHARACTERISTICS

Steeply-sloping stand adjacent to unstable Class III stream. SE to SW aspects. No muskeg in the unit. Western hemlock forest type dominated by western hemlock and minor stocking of Sitka spruce, with mountain hemlock on upper slopes. The stand is generally 250-350 years old, with a complex age and canopy structure. Most of the area is Volume Class 4, low productivity. High defect, increasing mortality due to age and condition of stand. Little evidence of recent windthrow; moderate risk of windthrow following harvest. Understory vegetation is open to dense stocking of Vaccinium and other shrubs. Advance growth is highly variable in both quality and density.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** No suitable landing sites are available in the unit. No stable road location was found. Therefore, helicopter logging is required. Use landing at end of temp road extending from Goldbelt road # 2217.

**Visual Resource Management:** The area is generally not seen from the visual priority route. VQO of Maximum Modification.

**Soils / Geology:** Unstable area in unit as originally laid out. Modified the unit boundary to exclude unstable area. BMP 13.5.

**Fisheries / Watershed:** (1) Stream 3 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (2) Streams 1 and 2 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** Reserve trees and snags could increase habitat quality for some species. Clearcut with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain fish habitats adjacent to unit.
- (5) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Clearcut with reserves best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) More than 80% of net volume available will be harvested. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Downstream fish habitats will be maintained by pulling the unit boundary back from the steep, unstable above the Class 3 stream. (5) Site quality will be maintained or improved, due to increased soil functioning resulting from blowdown and, to some extent, soil warming. Reserve groups will provide structural diversity and ecological functions. (6) Helicopter logging will be most economically feasible, considering effects on reduced road construction. All told, the selected alternative meets the integrated resource objectives.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The eastern end of the unit as originally laid out was dropped due to unstable soils. Mass movement should not be a problem in the reconfigured unit. The unit boundaries were laid out to conform with timber types and soil stability.

### Forest Productivity Activities:

Soil mixing from windthrow of reserve trees is expected to reduce podzol development on limited areas. Exposure of mineral soil on windthrow mounds is expected to provide favorable seedbed for spruce.

## MONITORING PLAN

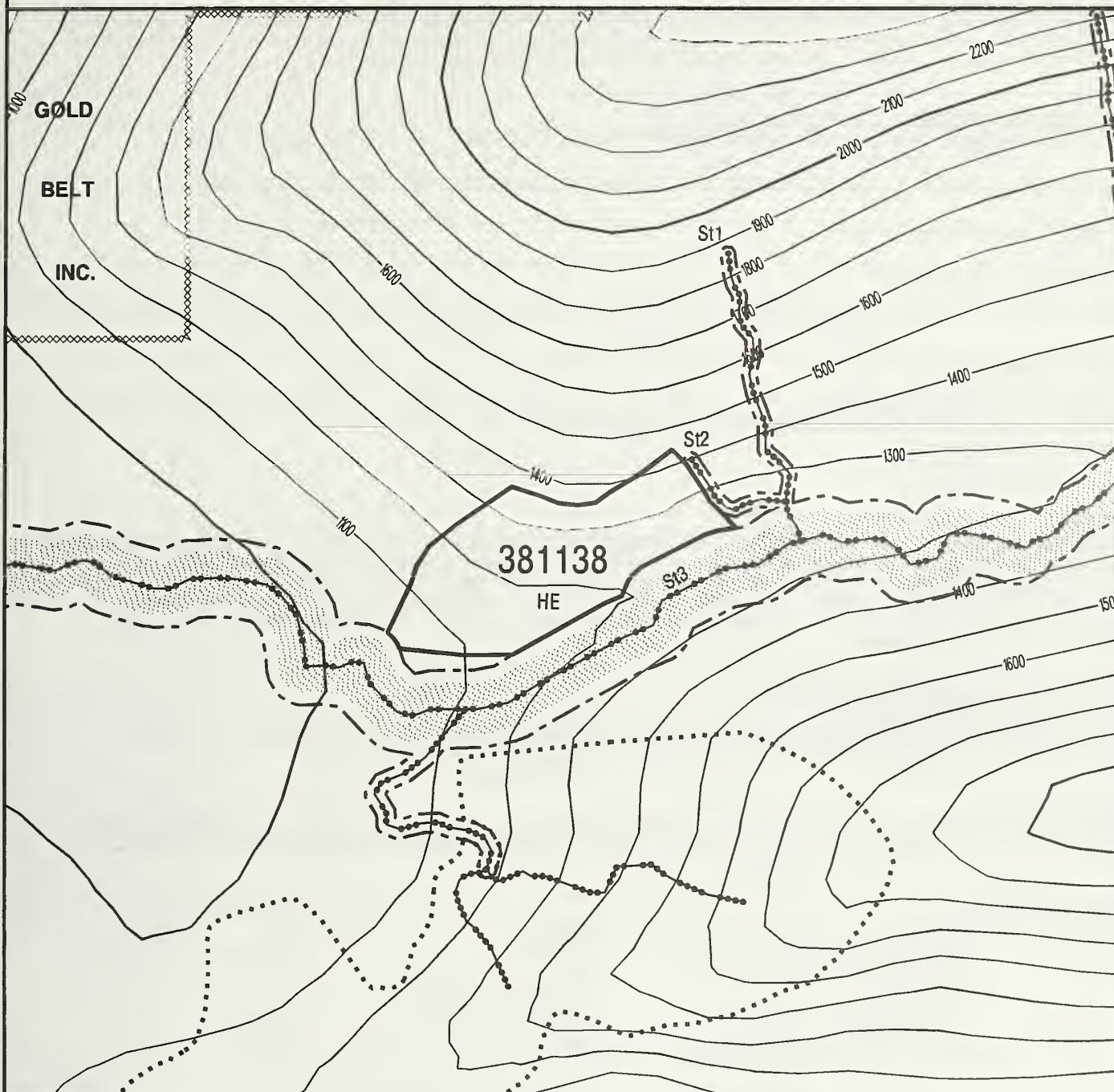
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
	*Note that PCT is probably impractical, due to high amt. of defective logs on ground w/ heli.logging.		



MAP NO.: 16 VCU: 80 UNIT: 381138 ALTERNATIVE(S): 2 3 4 5

ACRES: 14.58 TOTAL NET MBF: 213.2 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 34



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
□ ROAD BEGINS  
○<sup>1</sup> LANDING & NUMBER  
★ EAGLE TREE

STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 381139

MAP# 19

## STAND CHARACTERISTICS

Mid-slope unit, moderately steep, on NW to SW aspect, adjacent to heavily-logged native corporation lands. Slopes range from moderate to steep. Western hemlock forest type, with *Vaccinium* and other shrub understory. Functionally even-aged stand of western hemlock, mountain hemlock, and Sitka spruce, with older component 350-years or more. Low site productivity, Vol. Class 4 and 5. Moderately defective. Moderate windthrow potential. High regeneration potential.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Not suitable for partial cutting on much of the area. Temporary road construction required taking off of Goldbelt road #2217.

**Visual Resource Management:** VQO is Maximum Modification. Two northern settings are unseen from small boat route; southern setting is viewed in background.

**Soils / Geology:** No special concerns were noted.

**Fisheries / Watershed:** No concerns noted.

**Wildlife:** Retention of snags and green trees would benefit habitats for some species, particularly cavity-using birds. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

The selected alternative is shelterwood with reserves, best suited to this unit for these reasons: (1) Converts the area to more vigorous young stand. (2) A high proportion of the net available volume will be harvested, since many of the reserves will be cull trees. (3) Site quality will be maintained. Blowdown of reserve trees will provide soil ecological functions, and standing reserves will provide wildlife habitat and vertical stand structure. Soil warming will increase decomposition rate and may maintain or increase productivity of the new stand. Other alternatives: Clearcutting and clearcutting with reserves would provide more harvestable volume, but would not meet VQO to the degree needed. Group selection is impractical for an area this small and exposed directly to winds from the ocean. Deferring treatment would forego the opportunity for programmed harvest during the current entry.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit was reduced in size to separate an area of low productivity and high wildlife use. In addition, part of the original unit was split off to form Unit 381140. The remainder of the unit boundary configuration was designed to conform with timber types and logical harvest system layout.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity. Blowdown of reserves will provide soil ecological functions and increase exposure of mineral soil for regeneration of spruce. Logging disturbance could reduce podzol development. Increase in spruce regeneration is expected to increase timber production.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist

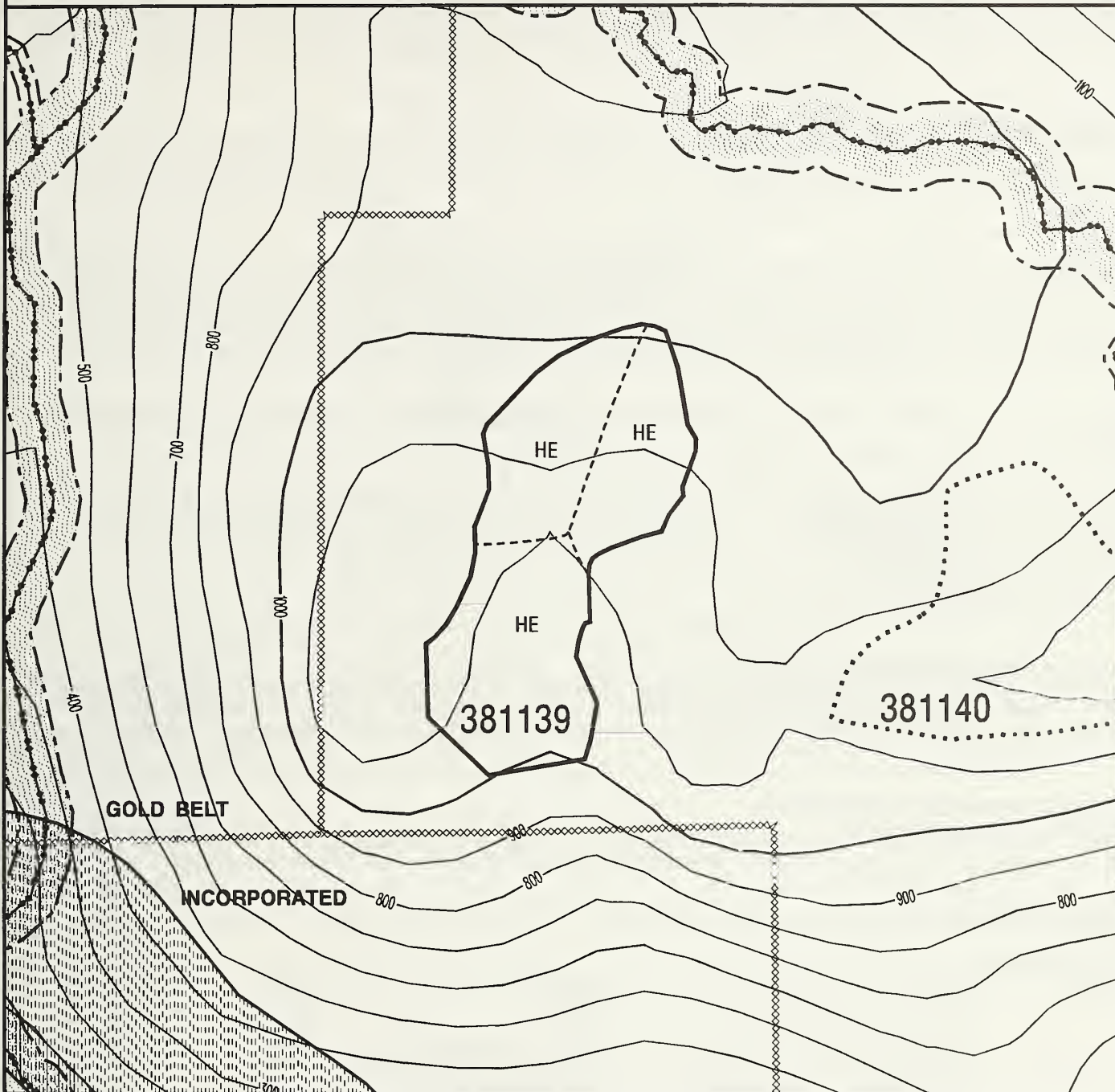


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 19 VCU: 80 UNIT: 381139 ALTERNATIVE(S): 2 3 4 5

ACRES: 28.36 TOTAL NET MBF: 415.5 QUAD(S): SUMB4 QUARTER QUAD(S): SW

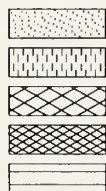
PHOTO INFO: YEAR: 1987 FLIGHT LINE: 52 ROLL NO.: 684 PRINT NO.: 40



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

LOGGING SYSTEM CODES:

HE = HELICOPTER  
SV = SHOVEL  
C = CABLE  
St1 STREAM ID IN NARRATIVE  
□ ROAD BEGINS  
○<sup>1</sup> LANDING & NUMBER  
★ EAGLE TREE



STREAM TTRA BUFFER  
BEACH/ESTUARY BUFFER  
SEAWATER  
LAKE  
LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 381140

MAP# 18

## STAND CHARACTERISTICS

Mid-slope unit, moderately steep, on NW to SW aspect, close to heavily-logged native corporation lands. Slopes range from moderate to steep. Western hemlock forest type, with Vaccinium and other shrub understory. Functionally even-aged stand of western hemlock, mountain hemlock, and Sitka spruce, with older component 350-years or more. Low site productivity, Vol. Class 4 and 5. Moderately defective. Moderate windthrow potential. High regeneration potential. (This unit was formerly a part of Unit 381139.)

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Not suitable for partial cutting on much of the area. Use temporary spur road onto FS lands from Goldbelt road #2217.

**Visual Resource Management:** VQO is Maximum Modification.

**Soils / Geology:** No special concerns.

**Fisheries / Watershed:** (1) Stream 1a (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (2) Streams 1 and 2 - See Class IV overall prescription in the Resource Opportunities and Constraints section in Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (3) Stream 3 (FP) - See Class III (also Class II non-direct) overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b and BMP 13.9.

**Wildlife:** Retention of snags and green trees would benefit habitats for some species, particularly cavity-using birds. Some opportunities will be used in this unit to retain vertical structure.

**Cultural / Recreation / Subsistence:** No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

The selected alternative is clearcutting, best suited to this unit for these reasons: (1) Converts the area to more vigorous young stand. (2) Virtually all of the net available volume will be harvested. (3) The unit will meet the VQO of Maximum Modification. (4) Site quality will be maintained. Soil warming will increase decomposition rate and may maintain or increase productivity of the new stand. Note that, although the prescription is clearcutting, there will be opportunities for feathering unit edges, leaving unharvested patches, and scattered reserves to mitigate visual concerns.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit was reduced in size to separate an area of low productivity and high wildlife use. In addition, part of the original unit was split off to form Unit 381139. The remainder of the unit boundary configuration was designed to conform with timber types and logical harvest system layout, and to exclude unstable soils.

### Forest Productivity Activities:

Soil warming will increase biological activity and potentially increase productivity.

## MONITORING PLAN

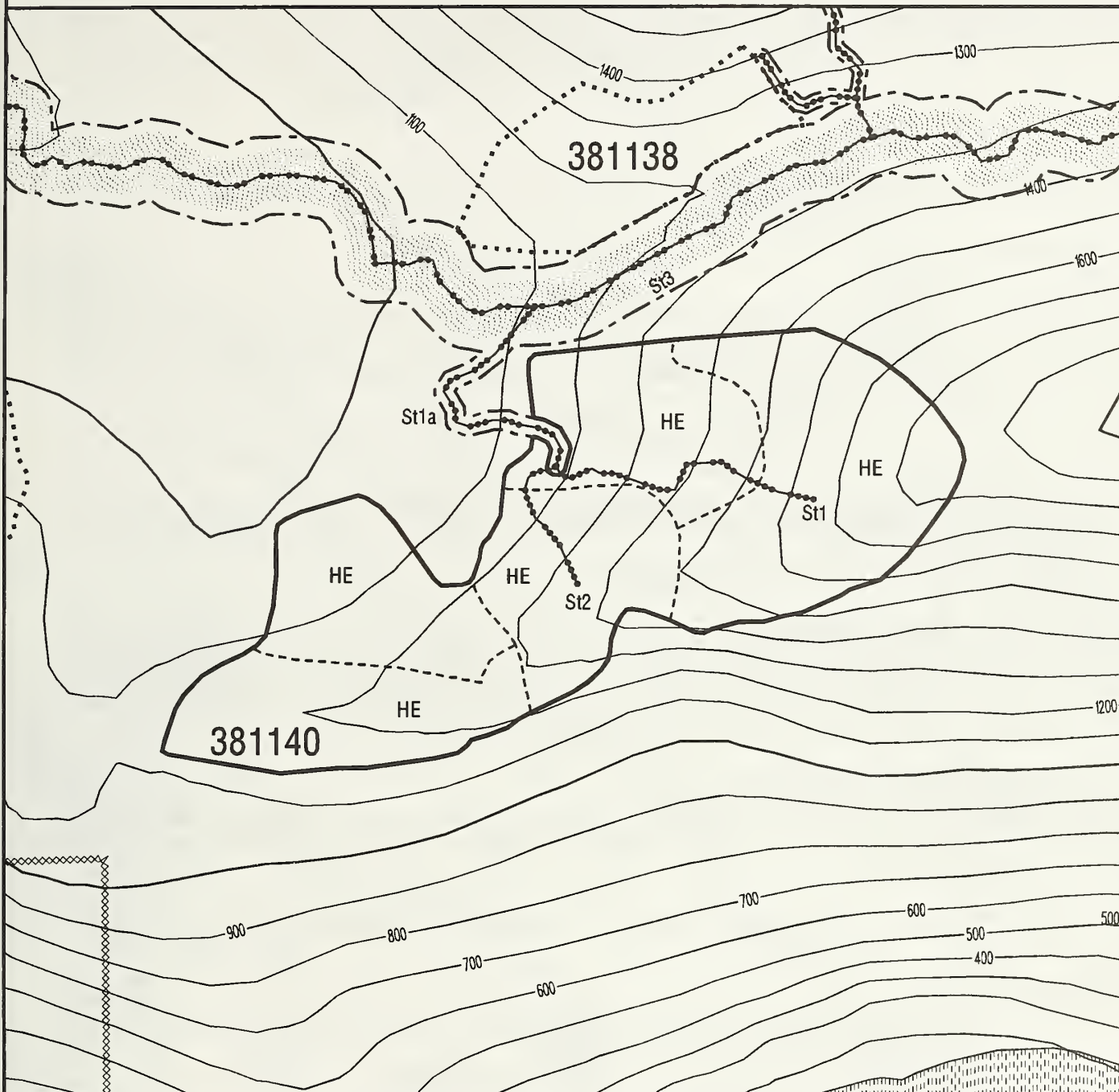
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
15-20	PCT needs survey	PCT if >700 tpa, VC5+, resource need	Silviculturist
15-30	PCT post-treatment svy. and certification	200-400 trees/acre	Silviculturist



MAP NO.: 18 VCU: 80 UNIT: 381140 ALTERNATIVE(S): 2 3 4 5

ACRES: 74.37 TOTAL NET MBF: 1660.6 QUAD(S): SUMB4 QUARTER QUAD(S): SW

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 53 ROLL NO.: 684 PRINT NO.: 34



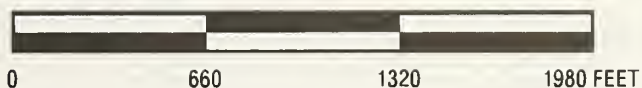
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

## LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM ID IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:7920 1 INCH = 660 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 381199

MAP# 5

## STAND CHARACTERISTICS

Mid-slope stand, beginning just below ridgetop and extending downslope. Moderately steep, on S to E aspect. No muskeg in the unit. Risk of mass movement is generally moderate. Western hemlock forest type. Upper slopes dominated by mountain hemlock, giving way to western hemlock below 1600 ft. elevation; minor stocking of Sitka spruce throughout. The dominant canopy is generally in excess of 300 years old, with a functionally even-aged structure. Most of the stand is Volume Class 6, highly-productive, but there is appreciable area of lower sites, primarily the upslope mountain hemlock area, where the timber is highly defective. Little evidence of recent windthrow; moderate risk of windthrow following harvest. Understory vegetation is moderately stocked with Vaccinium, with patches of devils club, skunk cabbage, and shield fern.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter logging is more economical than cable logging because road construction is not required. Use landing along Gold Belt Road #2214.

**Visual Resource Management:** Area is in the background view of visual priority travel route. VQO of Maximum Modification.

**Soils / Geology:** No special constraints.

**Fisheries / Watershed:** (1) Streams 1-6, 8 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 7 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section in Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 in Appendix A. Apply BMPs 12.6, 12.6a, and 13.16.

**Wildlife:** No special concerns noted. Opportunity for reserving live trees and snags for habitat structural diversity. Shelterwood with reserves was adopted for this unit.

**Cultural / Recreation / Subsistence:** No special concerns were noted.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Convert this overmature stand to a vigorous young stand with remnant biological structures.
- (2) Provide a programmed timber yield.
- (3) Meet Visual Quality Objectives for the unit.
- (4) Maintain or improve site productivity.

## RATIONALE FOR ALTERNATIVE SELECTION

Shelterwood with reserves best meets integrated resource objectives. Rationale: (1) Converts unit to more vigorous young stand. (2) A high proportion of the net volume available will be harvested. (3) Unit design, location, and silv. treatment will allow the VQO of Maximum Modification to be met. (4) Channel conditions will be maintained by buffering Class III stream and protecting vegetation in the buffered V-notch. (5) Site quality will be maintained or improved, due to increased soil functioning resulting from blowdown and, to some extent, soil warming. Reserve groups will provide structural diversity and ecological functions. (6) Helicopter logging will be most economically feasible, considering effects on reduced road construction. All told, the selected alternative meets the integrated resource objectives.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit boundaries were located on a rounded back of a ridge to accommodate natural landforms and timber type. In addition, the unit conforms to the shape of natural openings in the area. The top of the unit forms a transition to the more open boundaries of the muskegs located on the ridgetop. Boundaries were designed to exclude unstable soils and submerchantable timber.

### Forest Productivity Activities:

Soil mixing from windthrow of reserve trees is expected to reduce podzol development on limited areas. Exposure of mineral soil on windthrow mounds is expected to provide favorable seedbed for spruce.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist
	*Note that PCT is probably impractical, due to high amt. of defective logs on ground w/ heli.logging.		

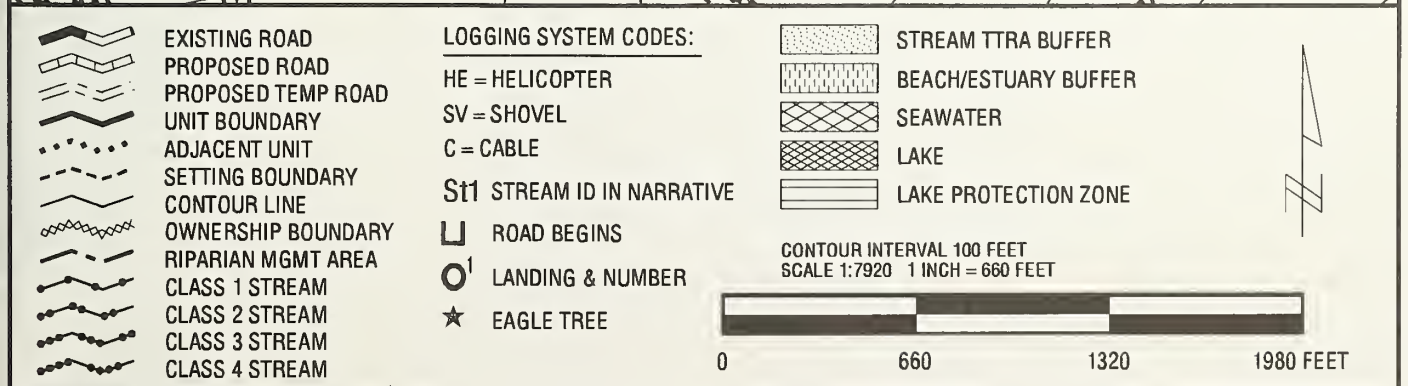
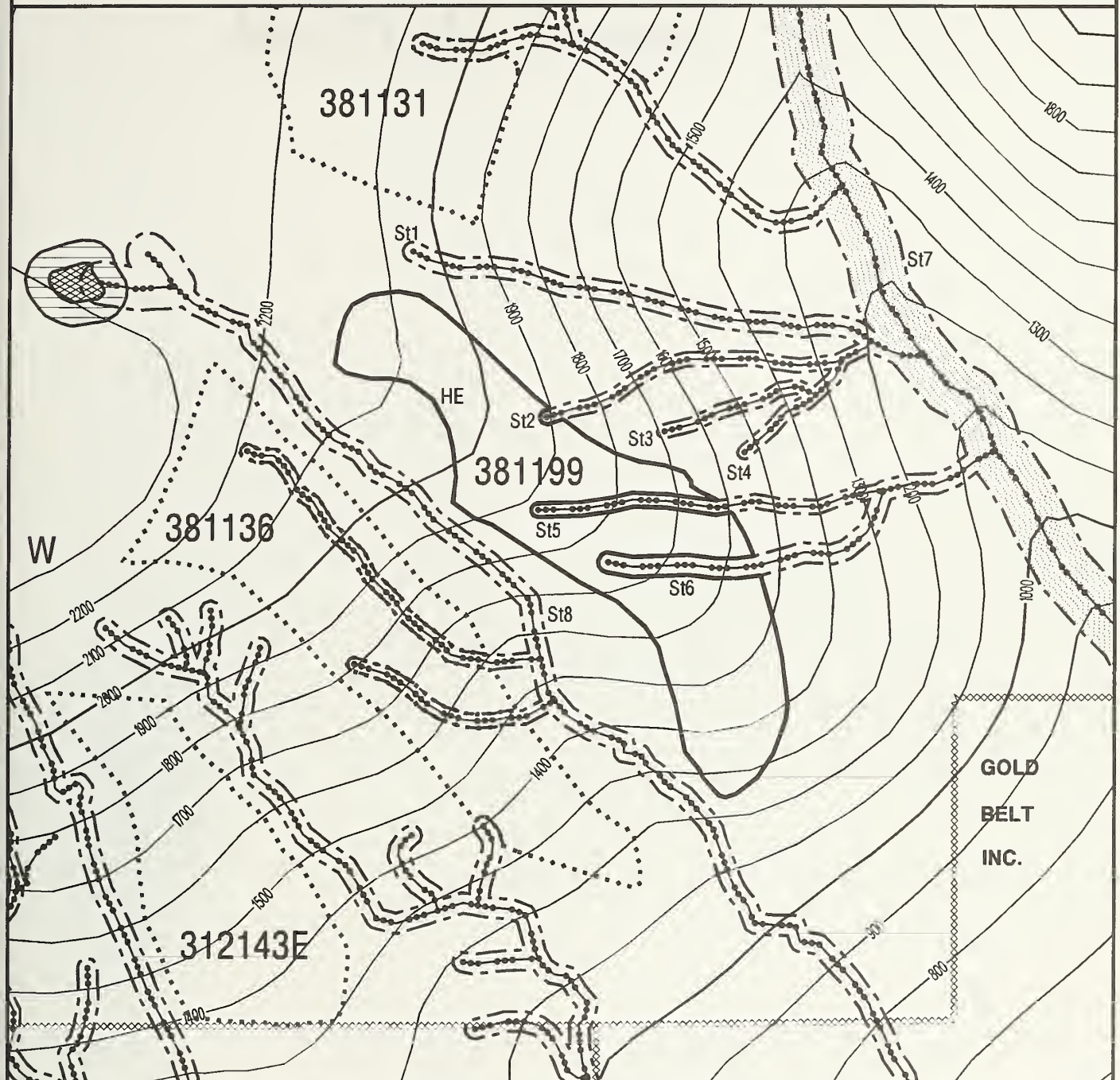


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

MAP NO.: 5 VCU: 80 UNIT: 381199 ALTERNATIVE(S): 2 3 4 5

ACRES: 24.99 TOTAL NET MBF: 530.9 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 784 PRINT NO.: 35









# **Area Cards with Multiple Maps**



# THE CHINESE REPUBLIC

THE CHINESE  
REPUBLIC

THE CHINESE  
REPUBLIC

THE CHINESE  
REPUBLIC

THE CHINESE  
REPUBLIC

THE CHINESE  
REPUBLIC

THE CHINESE  
REPUBLIC



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# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: **Salvage (261,271)**

MAP: **Salvage**

## STAND CHARACTERISTICS

Mid elevation stands of medium sawtimber with moderate to high defect and mortality. Most areas identified for helicopter sanitation/salvage are open canopy stands in the WH-YC series. Yellow cedar is up to 50% of stand volume. Cedar decline is evident in moderate to high amounts and mortality is also high in the hemlock and spruce. Well over half of the dead cedar has no salvage value. Stand structure varies from uneven-aged to functionally even-aged. Advanced regeneration occupies from 20-30% of growing space in the VC 4. Understory vegetation is heavy to blueberry and skunk cabbage. Rusty menziesia is common but seldom dominates. Soil drainage is poor to moderately poor. Potential productivity and cedar decline are correlated to the poor soil drainage. Most slopes are under 40%, Topography is broken because of pits and mounds from mortality and windthrow. Most of the stands are relatively windfirm because of position on slope, open stand structure, tree height, and prominence of yellow cedar. Merchantable timber is almost all over 250 yrs old. Potential productivity is fair to moderate.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Skyline systems are not feasible for sanitation salvage Rx. (2) Sanitation-salvage is feasible with helicopter. (3) Helicopter EYD can be maintained below 4000 ft and landings from conventional units be used. (4) High value of yellow cedar. BMP 13.9.

**Visual Resource Management:** (1) VQO: Modification; VAC: High.

**Soils / Geology:** (1) No concerns given helicopter partial harvest.

### Fisheries / Watershed:

#### MAP 1 of 4 (261)

(1) Streams 5, 15, 16 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 12.6, 12.6a and 3.16. (2) Streams 4, 13, 14 (MM) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Streams 2, 3, 9, 11, 12, 17, 18 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (4) Streams 1, 6, 7, 8, 10 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c.

**Wildlife:** (1) Treatment areas are retained buffers between regeneration units and likely travel corridors and thermal cover. (2) Maintain vertical habitat structure in harvest units where feasible. (3) Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented. (4) Avoid flight paths in mountain goat kidding habitat from mid May through June.

**Cultural / Recreation / Subsistence:** (1) No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Sanitation - salvage of overmature and diseased stand.
- (2) Improve timber volume and value productivity.
- (3) Maintain vertical structure and cavity nesting habitat where not in conflict with logging systems feasibility.

## RATIONALE FOR ALTERNATIVE SELECTION

Sanitation-salvage is the selected alternative because: (1) Provides a high value yield from a defective stand with high potential and low current net productivity; (2) Leave tree identification should leave a thrifty stand of good phenotype and release existing advanced regeneration. (3) Salvages high value cedar and maintains merchantable cedar growing stock in good condition; and (4) Maintains travel corridors and vertical and cavity nesting habitat structure. Helicopter harvest is flexible in regards to Rx. Clearcut would provide a 50% higher timber yield but is less conservative of YC growing stock and visual, wildlife, and watershed impacts are greater. CC with reserves, shelterwood with reserves, or group selection would be deferred because of adjacent regeneration units. Defer would not provide a timber yield and would not treat a relatively low impact yet high valued harvest. An opportunity for one dimension of adaptive management of yellow cedar would be forgone.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit is leave strips between regeneration units and helicopter settings in the area of moderate to high cedar decline within VCU 860, 870, and 890. Attention should be taken to insure that no-cut buffers are flagged during layout on Class I, II, & III streams. See map.

### Forest Productivity Activities:

Sanitation treatment will remove diseased trees that are no longer capable of long-term sustainable production. This will make growing space available for more vigorous trees that will better utilize the capabilities of the site. Salvage of dead trees is not expected to affect site productivity.

## MONITORING PLAN

Date	Activity	Standard	Who
Year 1	Unit Acceptance and completion of erosion control	TS Contract	Sale Admin
Year 1	Evaluation of Stand condition and health	Silvi Rx	Silviculturist
Year 10	Stand Examination: Reevaluation of stand health	TSE eval - No monitoring standards set	Silviculturist

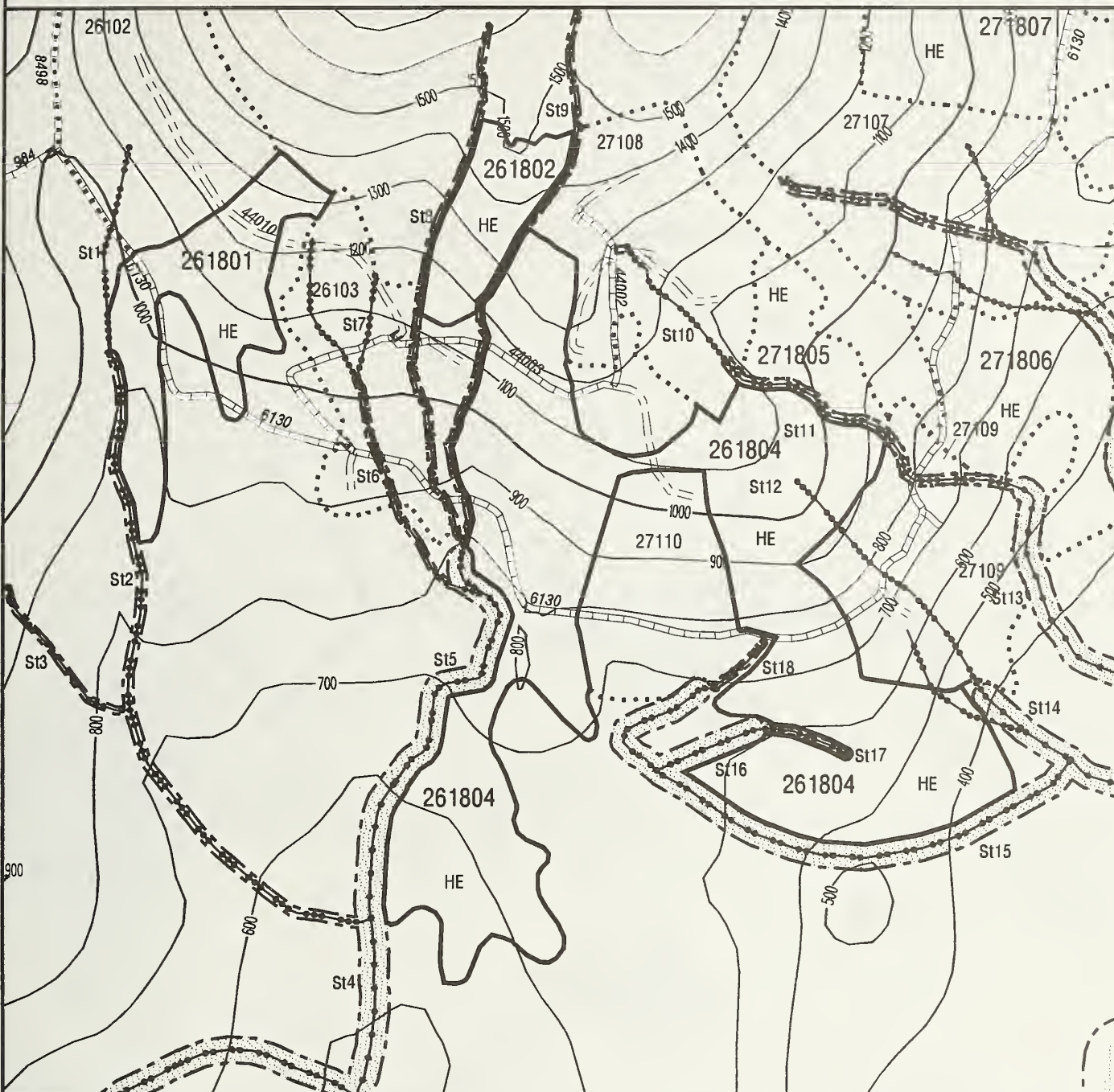


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

VCU: 86 UNIT(S): SALVAGE 261 ALTERNATIVE(S): 2 4 5

ACRES: 325.85 TOTAL NET MBF: 5159.9 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 135



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM NO. IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:15840 1 INCH = 1320 FEET



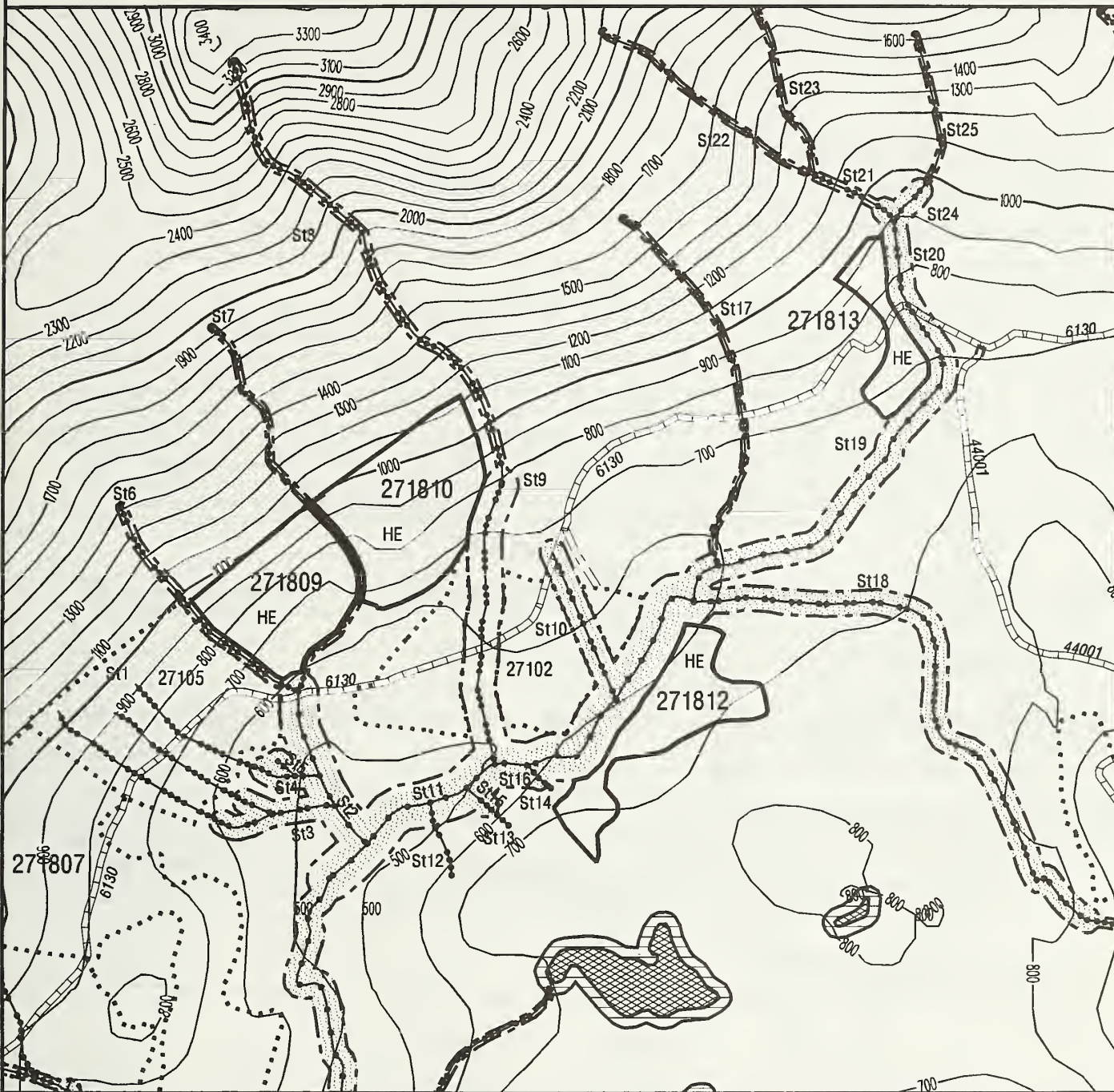


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PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

VCU: 87 UNIT(S): SALVAGE 271 ALTERNATIVE(S): 2 4 5 MAP 1 OF 2  
 ACRES: 92.52 TOTAL NET MBF: 4899.4 QUAD(S): SUMA5 QUARTER QUAD(S): NE  
 PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 153



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPIARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM NO. IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:15840 1 INCH = 1320 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: **Salvage (271)**

MAP: **Salvage**

## STAND CHARACTERISTICS

Mid elevation stands of medium sawtimber with moderate to high defect and mortality. Most areas identified for helicopter sanitation/salvage are open canopy stands in the WH-YC series. Yellow cedar is up to 50% of stand volume. Cedar decline is evident in moderate to high amounts and mortality is also high in the hemlock and spruce. Well over half of the dead cedar has no salvage value. Stand structure varies from uneven-aged to functionally even-aged. Advanced regeneration occupies from 20-30% of growing space in the VC 4. Understory vegetation is heavy to blueberry and skunk cabbage. Rusty menziesia is common but seldom dominates. Soil drainage is poor to moderately poor. Potential productivity and cedar decline are correlated to the poor soil drainage. Most slopes are under 40%. Topography is broken because of pits and mounds from mortality and windthrow. Most of the stands are relatively windfirm because of position on slope, open stand structure, tree height, and prominence of yellow cedar. Merchantable timber is almost all over 250 yrs old. Potential productivity is fair to moderate.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Skyline systems are not feasible for sanitation salvage Rx. (2) Sanitation-salvage is feasible with helicopter. (3) Helicopter EYD can be maintained below 4000 ft and landings from conventional units be used. (4) High value of yellow cedar. BMP 13.9.

**Visual Resource Management:** (1) VQO: Modification; VAC: High.

**Soils / Geology:** (1) No concerns given helicopter partial harvest.

## Fisheries / Watershed:

### MAP 2 of 2 (271)

(1) **Streams 3, 4, 5, 15, 16, 18, 20, 24** (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 12.16, 12.16 a and 13.16. (2) **Streams 2, 11** (FP) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) **Streams 10, 19** (MM) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) **Streams 6, 7, 8, 12, 13, 14, 17, 21, 22, 23, 25** (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (5) **Stream 9** (AF) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area. The RMA is the greater of the active portion of the alluvial fan or 140 feet from the current channel(s). Manage across the remainder of the fan (no more than 10% of the fan harvested in a 30-year period) with the objective of leaving large trees within the stand for the future recruitment to stream channels. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b.

**Wildlife:** (1) Treatment areas are retained buffers between regeneration units and likely travel corridors and thermal cover. (2) Maintain vertical habitat structure in harvest units where feasible. (3) Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented. (4) Avoid flight paths in mountain goat kidding habitat from mid May through June.

**Cultural / Recreation / Subsistence:** (1) No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Sanitation - salvage of overmature and diseased stand.
- (2) Improve timber volume and value productivity.
- (3) Maintain vertical structure and cavity nesting habitat where not in conflict with logging systems feasibility.

## RATIONALE FOR ALTERNATIVE SELECTION

Sanitation-salvage is the selected alternative because: (1) Provides a high value yield from a defective stand with high potential and low current net productivity; (2) Leave tree identification should leave a thrifty stand of good phenotype and release existing advanced regeneration. (3) Salvages high value cedar and maintains merchantable cedar growing stock in good condition; and (4) Maintains travel corridors and vertical and cavity nesting habitat structure. Helicopter harvest is flexible in regards to Rx. Clearcut would provide a 50% higher timber yield but is less conservative of YC growing stock and visual, wildlife, and watershed impacts are greater. CC with reserves, shelterwood with reserves, or group selection would be deferred because of adjacent regeneration units. Defer would not provide a timber yield and would not treat a relatively low impact yet high valued harvest. An opportunity for one dimension of adaptive management of yellow cedar would be forgone.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit is leave strips between regeneration units and helicopter settings in the area of moderate to high cedar decline within VCU 860, 870, and 890.

### Forest Productivity Activities:

Sanitation treatment will remove diseased trees that are no longer capable of long-term sustainable production. This will make growing space available for more vigorous trees that will better utilize the capabilities of the site. Salvage of dead trees is not expected to affect site productivity.

## MONITORING PLAN

Date	Activity	Standard	Who
Year 1	Unit Acceptance and completion of erosion control	TS Contract	Sale Admin
Year 1	Evaluation of stand condition and health	Silvi Rx	Silviculturist
Year 10	Stand Examination: Reevaluation of stand health	TSE eval. - No monitoring standards set	Silviculturist

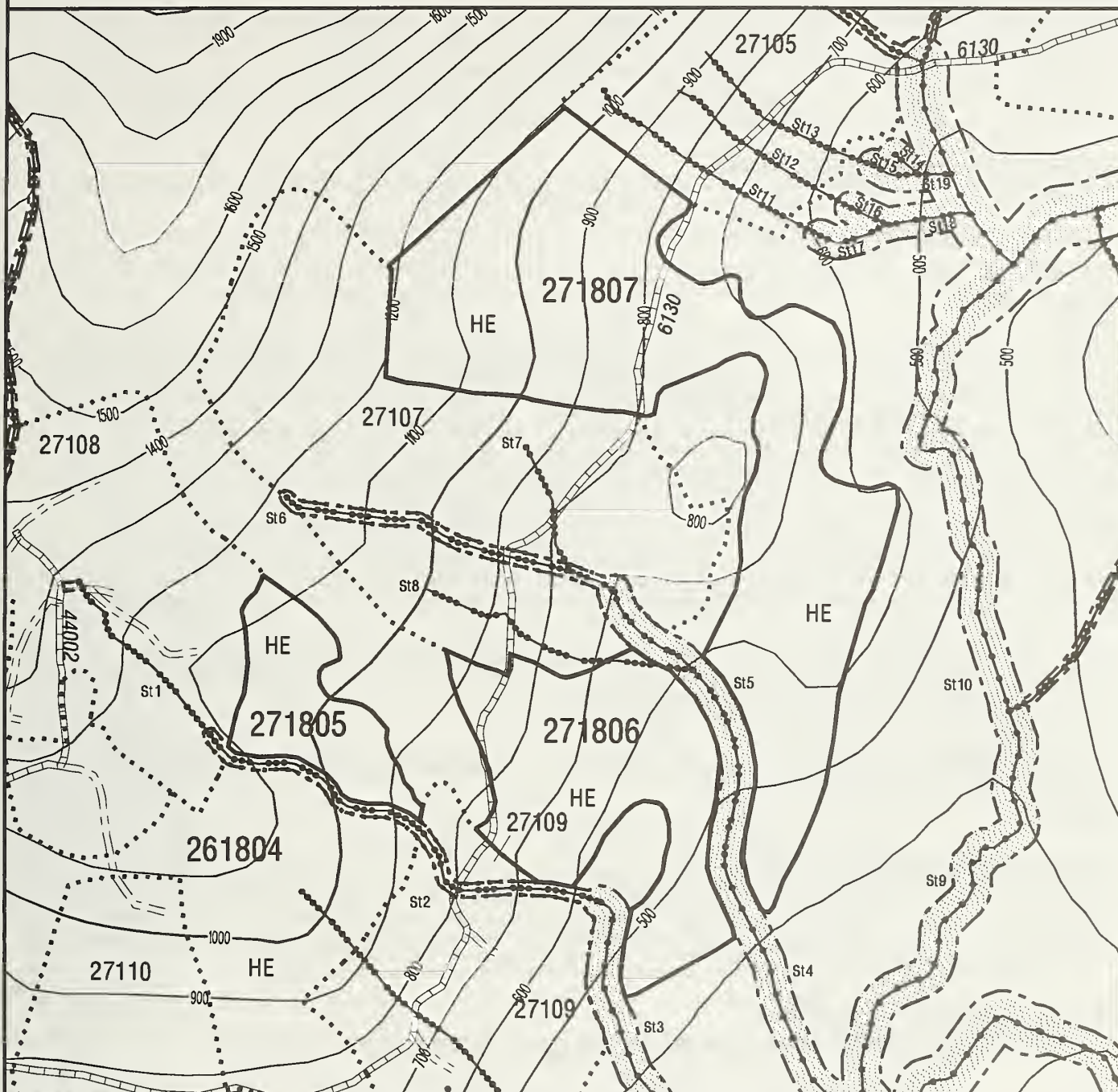


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

VCU: 87 UNIT(S): SALVAGE 271 ALTERNATIVE(S): 2 4 5 MAP 2 OF 2

ACRES: 190.79 TOTAL NET MBF: 4899.4 QUAD(S): SUMA5 QUARTER QUAD(S): NE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 26 ROLL NO.: 888 PRINT NO.: 168



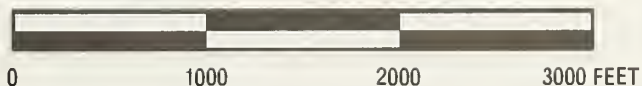
EXISTING ROAD  
 PROPOSED ROAD  
 PROPOSED TEMP ROAD  
 UNIT BOUNDARY  
 ADJACENT UNIT  
 SETTING BOUNDARY  
 CONTOUR LINE  
 OWNERSHIP BOUNDARY  
 RIPARIAN MGMT AREA  
 CLASS 1 STREAM  
 CLASS 2 STREAM  
 CLASS 3 STREAM  
 CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER  
 SV = SHOVEL  
 C = CABLE  
 St1 STREAM NO. IN NARRATIVE  
 ROAD BEGINS  
 LANDING & NUMBER  
 EAGLE TREE

STREAM TTRA BUFFER  
 BEACH/ESTUARY BUFFER  
 SEAWATER  
 LAKE  
 LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
 SCALE 1:12000 1 INCH = 1000 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: **Salvage (291)**

MAP: **Salvage**

## STAND CHARACTERISTICS

Mid elevation stands of medium sawtimber with moderate to high defect and mortality. Most areas identified for helicopter sanitation/salvage are open canopy stands in the WH-YC series. Yellow cedar is up to 50% of stand volume. Cedar decline is evident in moderate to high amounts and mortality is also high in the hemlock and spruce. Well over half of the dead cedar has no salvage value. Stand structure varies from uneven-aged to functionally even-aged. Advanced regeneration occupies from 20-30% of growing space in the VC 4. Understory vegetation is heavy to blueberry and skunk cabbage. Rusty menziesia is common but seldom dominates. Soil drainage is poor to moderately poor. Potential productivity and cedar decline are correlated to the poor soil drainage. Most slopes are under 40%. Topography is broken because of pits and mounds from mortality and windthrow. Most of the stands are relatively windfirm because of position on slope, open stand structure, tree height, and prominence of yellow cedar. Merchantable timber is almost all over 250 yrs old. Potential productivity is fair to moderate.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** (1) Skyline systems are not feasible for sanitation salvage Rx. (2) Sanitation-salvage is feasible with helicopter. (3) Helicopter EYD can be maintained below 4000 ft and landings from conventional units be used. (4) High value of yellow cedar. BMP 13.9.

**Visual Resource Management:** (1) VQO: Maximum Modification; VAC: High.

**Soils / Geology:** (1) No concerns given helicopter partial harvest.

### Fisheries / Watershed:

#### Map 4 of 4

(1) Streams 5, 7, 14, 16, 18, 19 (HC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Stream 6 (MM) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (3) Streams 15, 17 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (4) Stream 9 (PA) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 100 feet horizontal distance. apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (5) Stream 8 (FP) - See Class I and II overall prescription the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 130 feet horizontal distance. apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a, and 13.16. (6) Streams 1, 2, 10 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 3.16 sec. 3b. (7) Streams 3, 4, 11, 12, 13, 20, 21, 22, 23, 24 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec 3c.

**Wildlife:** (1) Treatment areas are retained buffers between regeneration units and likely travel corridors and thermal cover. (2) Maintain vertical habitat structure in harvest units where feasible. (3) Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented. (4) Avoid flight paths in mountain goat kidding habitat from mid May through June.

**Cultural / Recreation / Subsistence:** (1) No concerns.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Sanitation - salvage of overmature and diseased stand.
- (2) Improve timber volume and value productivity.
- (3) Maintain vertical structure and cavity nesting habitat where not in conflict with logging systems feasibility.

## RATIONALE FOR ALTERNATIVE SELECTION

Sanitation-salvage is the selected alternative because: (1) Provides a high value yield from a defective stand with high potential and low current net productivity; (2) Leave tree identification should leave a thrifty stand of good phenotype and release existing advanced regeneration. (3) Salvages high value cedar and maintains merchantable cedar growing stock in good condition; and (4) Maintains travel corridors and vertical and cavity nesting habitat structure. Helicopter harvest is flexible in regards to Rx. Clearcut would provide a 50% higher timber yield but is less conservative of YC growing stock and visual, wildlife, and watershed impacts are greater. CC with reserves, shelterwood with reserves, or group selection would be deferred because of adjacent regeneration units. Defer would not provide a timber yield and would not treat a relatively low impact yet high valued harvest. An opportunity for one dimension of adaptive management of yellow cedar would be forgone.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

The unit is leave strips between regeneration units and helicopter settings in the area of moderate to high cedar decline within VCU 860, 870, and 890.

### Forest Productivity Activities:

Sanitation treatment will remove diseased trees that are no longer capable of long-term sustainable production. This will make growing space available for more vigorous trees that will better utilize the capabilities of the site. Salvage of dead trees is not expected to affect site productivity.

## MONITORING PLAN

Date	Activity	Standard	Who
Year 1	Unit Acceptance and completion of erosion control	TS Contract	Sale Admin
Year 1	Evaluation of stand condition and health	Silvi Rx	Silviculturist
Year 10	Stand Examination: Reevaluation of stand health	TSE eval. - No monitoring standards set	Silviculturist

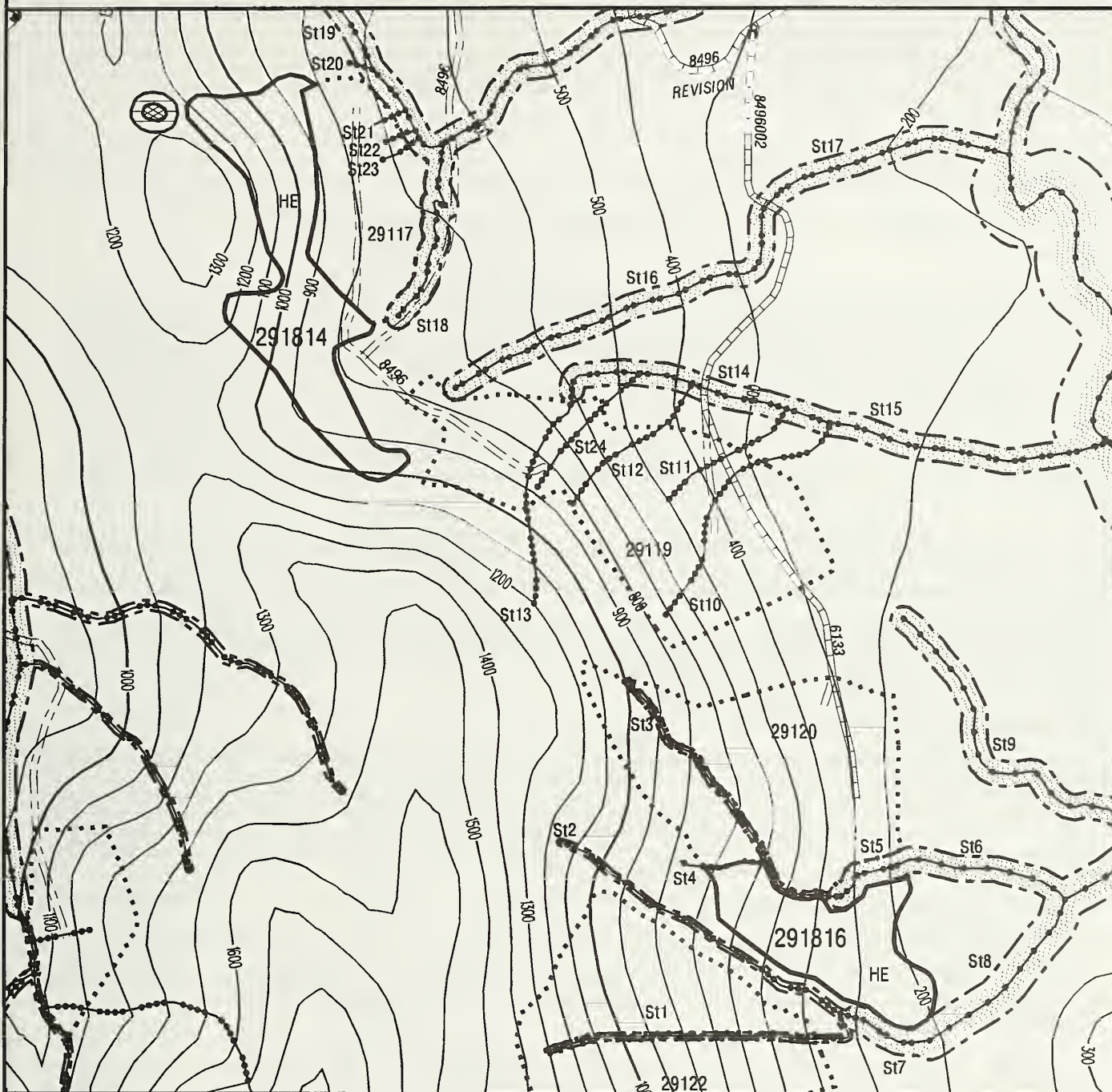


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

VCU: 89 UNIT(S): SALVAGE 291 ALTERNATIVE(S): 2 4 5

ACRES: 80.12 TOTAL NET MBF: 1326.1 QUAD(S): SUMA4 QUARTER QUAD(S): NW

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 28 ROLL NO.: 988 PRINT NO.: 204



EXISTING ROAD  
PROPOSED ROAD  
PROPOSED TEMP ROAD  
UNIT BOUNDARY  
ADJACENT UNIT  
SETTING BOUNDARY  
CONTOUR LINE  
OWNERSHIP BOUNDARY  
RIPARIAN MGMT AREA  
CLASS 1 STREAM  
CLASS 2 STREAM  
CLASS 3 STREAM  
CLASS 4 STREAM

## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

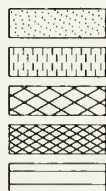
C = CABLE

St1 STREAM NO. IN NARRATIVE

ROAD BEGINS

LANDING & NUMBER

EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:15840 1 INCH = 1320 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 321GROUP

MAP # GROUP 321

## STAND CHARACTERISTICS

Generally mosaic and multiple storied stands in the W. hemlock/Y. cedar and mixed conifer series. These stands include scattered Sitka spruce and Mt. Hemlock in the overstory. The stand is composed of large, high quality sawtimber with moderate amounts of utility pulp. Slopes range from 0 to 30% on aspects from NW to NE. The designated areas are bounded by muskeg/ low site. Overstory ages are 150 to 300 years old with moderate defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage, defoliators, and windthrow. The understory is <20% stocked with 20 to 40 year old W. hemlock and Sitka spruce which occur in groups throughout with poor to fair vigor. Ground cover is moderate to dense vaccinium associated with rusty menziesia, and skunk cabbage. Minor new windthrow found throughout the area. Site is fair over the unit as a whole.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter- Yard to enlarged landing at units 321004 or 321010. BMP 13.9.

**Visual Resource Management:** VQO: Partial Retention. Group selection on flat areas not seen or hidden. Should meet VQO.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1 (FP) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial timber harvest within the Riparian Management Area, defined as the greater of the floodplain, riparian vegetation or soils, riparian associated wetland fens, or 130 feet. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (2) Streams 2, 5, 6 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 3 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120 feet horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. Stream 4 (LC) - See Class I overall prescription in the Resource Opportunities and Constraints section of Appendix A. No harvest within the Riparian Management Area, defined by the side-slope break or 100 feet horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 section 3b. Stream 7 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 section 3b.

**Wildlife:** Group within 6,000 acre foraging area of goshawk. Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Cultural / Recreation / Subsistence:** Group selection areas are above 100 foot elevation and a minimum of 1000 feet from shore. Not in high probability for cultural resource impact.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- 1) Provide moderate timber volume and value productivity from isolated stands that are predominantly in volume class IV.
- 2) Provide vertical and cavity nesting habitat structure within managed stands.
- 3) Enhance proportionality by adding significant areas of volume class 4.

## RATIONALE FOR ALTERNATIVE SELECTION

**Group Selection:** Create one to two acre openings removing all trees except occasional yellow cedar legacy trees as described below. Openings should fit the landscape which in this case is near flat to gentle slope. In areas adjacent to class III streams use the streams as boundaries for some openings. Do not cross a stream with an opening unless multiple forks are involved, then use the largest fork as a boundary. Leave Sitka spruce and Yellow cedar on the edge of the openings when found in the area. Avoid leaving trees infected with Dwarf mistletoe on the edge of the openings. This scheme will require 4 to 5 entries over 100 years where almost all the timber will be removed from these areas. During the ensuing entries it will be possible to designate patches of reserve trees or reserve areas. These areas will more than likely have a significant amount of snags, green culls, young timber or natural thrifty reproduction. Large (30"+) defective yellow cedar can be left throughout the area whenever they are encountered. This prescription will provide long term vertical habitat, mitigate visual impacts, and assist proportionality.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

This is an area group selection on timberlands generally in the volume class 4 strata at the northern end of the 321 watershed. These areas were photo mapped and visited during the 1994 field season to confirm their viability as timberland in the volume class 4 strata. The areas designated are small hills and elevated areas that are often surrounded or adjacent to low site and muskeg areas. The actual location of the individual group openings will not occur until final layout. The areas identified are at least 1000 feet from the shoreline of Port Houghton and 120 feet or more from designated class II and higher streams. Select boundaries that appear windfirm retain S. spruce and Y. cedar on the edges of openings when found.

### Forest Productivity Activities:

During precommercial thinning favor Sitka spruce and yellow cedar; also treat regeneration for dwarf mistletoe as needed.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist

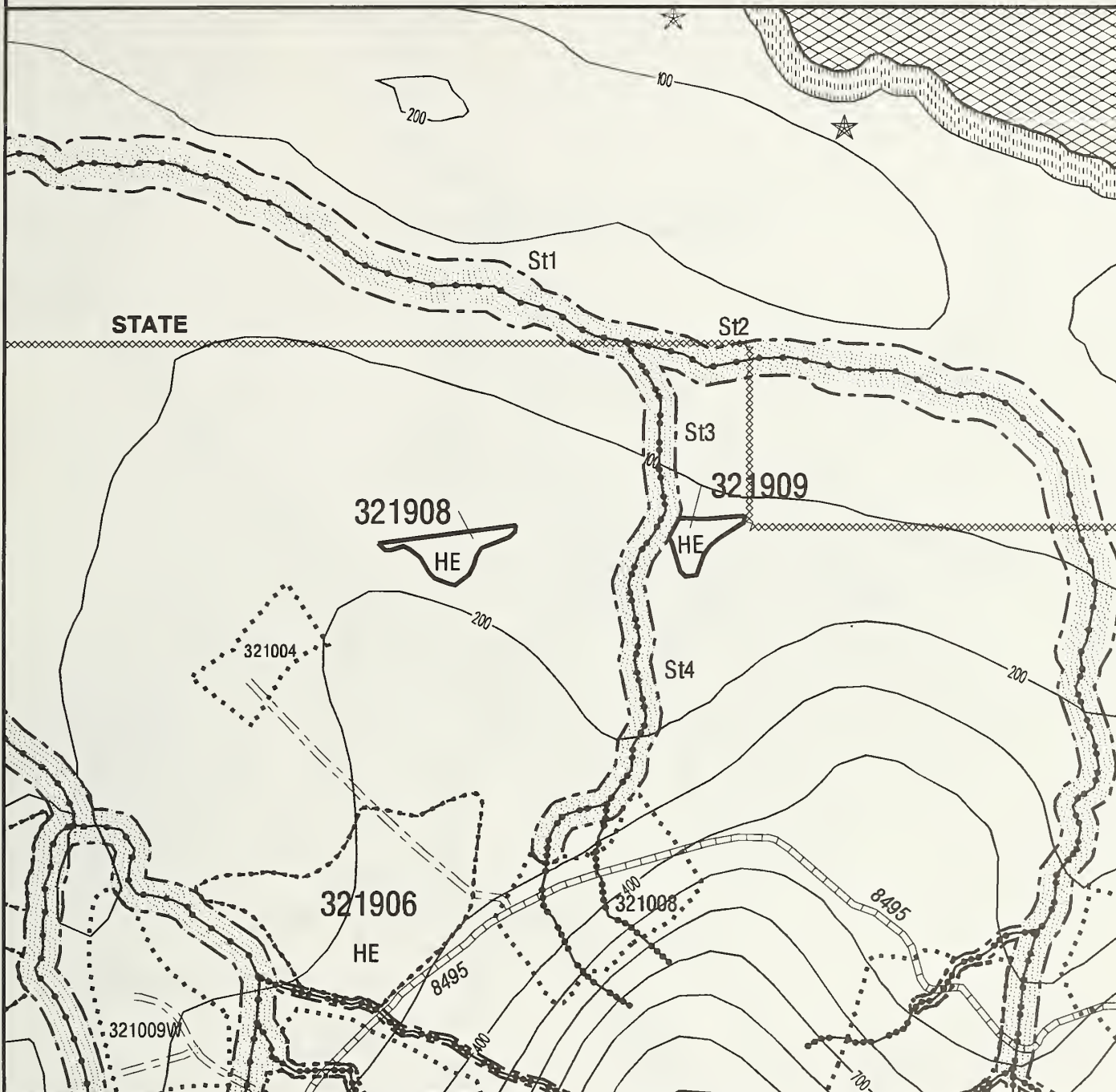


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

VCU: 82 UNIT(S): GROUP321 ALTERNATIVE(S): 4 MAP 1 OF 2

ACRES: 5.36 TOTAL NET MBF: 216.8 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 48 ROLL NO.: 684 PRINT NO.: 117



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM NO. IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:12000 1 INCH = 1000 FEET





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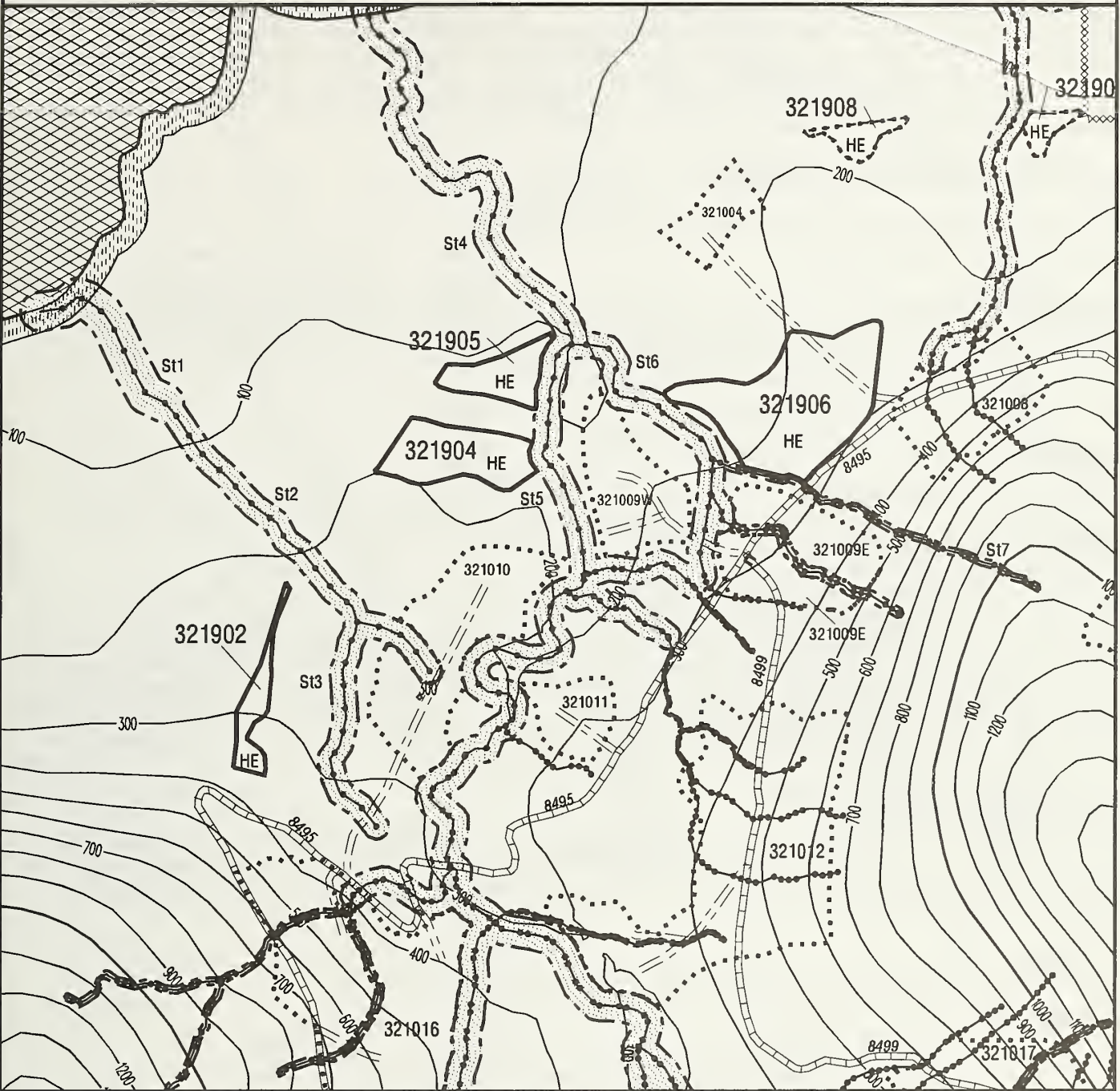


PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

VCU: 82 UNIT(S): GROUP321 ALTERNATIVE(S): 4 MAP 2 OF 2

ACRES: 54.23 TOTAL NET MBF: 216.8 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 24 ROLL NO.: 888 PRINT NO.: 196



- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED TEMP ROAD
- UNIT BOUNDARY
- ADJACENT UNIT
- SETTING BOUNDARY
- CONTOUR LINE
- OWNERSHIP BOUNDARY
- RIPARIAN MGMT AREA
- CLASS 1 STREAM
- CLASS 2 STREAM
- CLASS 3 STREAM
- CLASS 4 STREAM

LOGGING SYSTEM CODES:

- HE = HELICOPTER
- SV = SHOVEL
- C = CABLE
- St1 STREAM NO. IN NARRATIVE
- ROAD BEGINS
- LANDING & NUMBER
- EAGLE TREE

- STREAM TTRA BUFFER
- BEACH/ESTUARY BUFFER
- SEAWATER
- LAKE
- LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:15840 1 INCH = 1320 FEET





# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 322GROUP

MAP #: GROUP 322

## STAND CHARACTERISTICS

Generally mosaic and multiple storied stands in the W. hemlock/Y. cedar and mixed conifer series. These stands include scattered Sitka spruce and Mt. Hemlock in the overstory. The stand is composed of medium size, moderate quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 40% on aspects from NW to NE which are bisected by 2 significant V-notch creeks. These areas are typically surrounded or adjacent to low site or muskeg lands. Overstory ages are 150 to 300 years old with moderate defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage, defoliators, and windthrow. The understory is typically <20% stocked with 20 to 40 year old W. hemlock and Sitka spruce which occur in groups throughout with poor to good vigor. Ground cover is moderate to dense vaccinium associated with rusty menziesia, and skunk cabbage. Significant new windthrow found throughout the area. Site is fair over the unit as a whole. These areas are isolated stands of timber where road construction is not feasible or economically desirable.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter yard to expanded landings in units 322031 and 331045.

**Visual Resource Management:** Midground; VQO modification. Group selection should meet VQO.

**Soils / Geology:** No concerns identified in these areas.

**Fisheries / Watershed:** (1) Stream 1, 3, 9 (MC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within 100ft or within the channel side-slope break, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (2) Streams 2, 4, 5, 6, 7, 8 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Suitable black bear, marten, and red-breasted sapsucker habitat.

**Cultural / Recreation / Subsistence:** No concerns; areas lie above 100 ft elevation.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- 1) Provide moderate timber volume and value productivity from isolated stands that are predominantly in volume class 4.
- 2) Provide vertical and cavity nesting habitat structure within managed stands.
- 3) Enhance proportionality by adding significant areas of volume class 4.

Group Selection Sub-Units are bounded by low productivity areas and TTRA Class I and II stream buffers.

## RATIONALE FOR ALTERNATIVE SELECTION

**Group Selection:** Create one to two acre openings removing all trees except occasional Yellow cedar legacy trees as described below. Openings should fit the landscape which in this case is near flat to gentle slope. In areas adjacent to class III streams use the streams as boundaries for some openings. Do not cross a stream with an opening unless multiple forks are involved, then use the largest fork as a boundary. Leave Sitka spruce and Yellow cedar on the edge of the openings when found in the area. Avoid leaving trees infected with Dwarf mistletoe on the edge of the openings. This scheme will require 4 to 5 entries over 100 years where almost all the timber will be removed from these areas. During the last two entries it will be possible to designate patches of reserve trees or reserve areas. These areas will more than likely have a significant amount of snags, green culls, young timber or natural thrifty reproduction. Large (30">) defective Yellow cedar can be left throughout the area at any time they are encountered. This prescription will provide long term vertical habitat, mitigate visual impacts, and assist proportionality.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

This is an area group selection on timberlands generally in the volume class 4 strata at the northern end of the 321 watershed. These areas were photo mapped and visited during the 1994 field season to confirm their viability as timberland in the volume class 4 strata. The areas designated are Sub-Units located on small hills and elevated areas that are often surrounded or adjacent to low site and muskeg areas. The actual location of the individual group openings will not occur until final layout. The areas identified are at least 1,000 feet from the shoreline of Port Houghton and 120 feet or more from designated class II and higher streams. Select boundaries that appear windfirm.

### Forest Productivity Activities:

During precommercial thinning favor Sitka spruce and Yellow cedar; also treat regeneration for dwarf mistletoe as needed.

## MONITORING PLAN

Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist

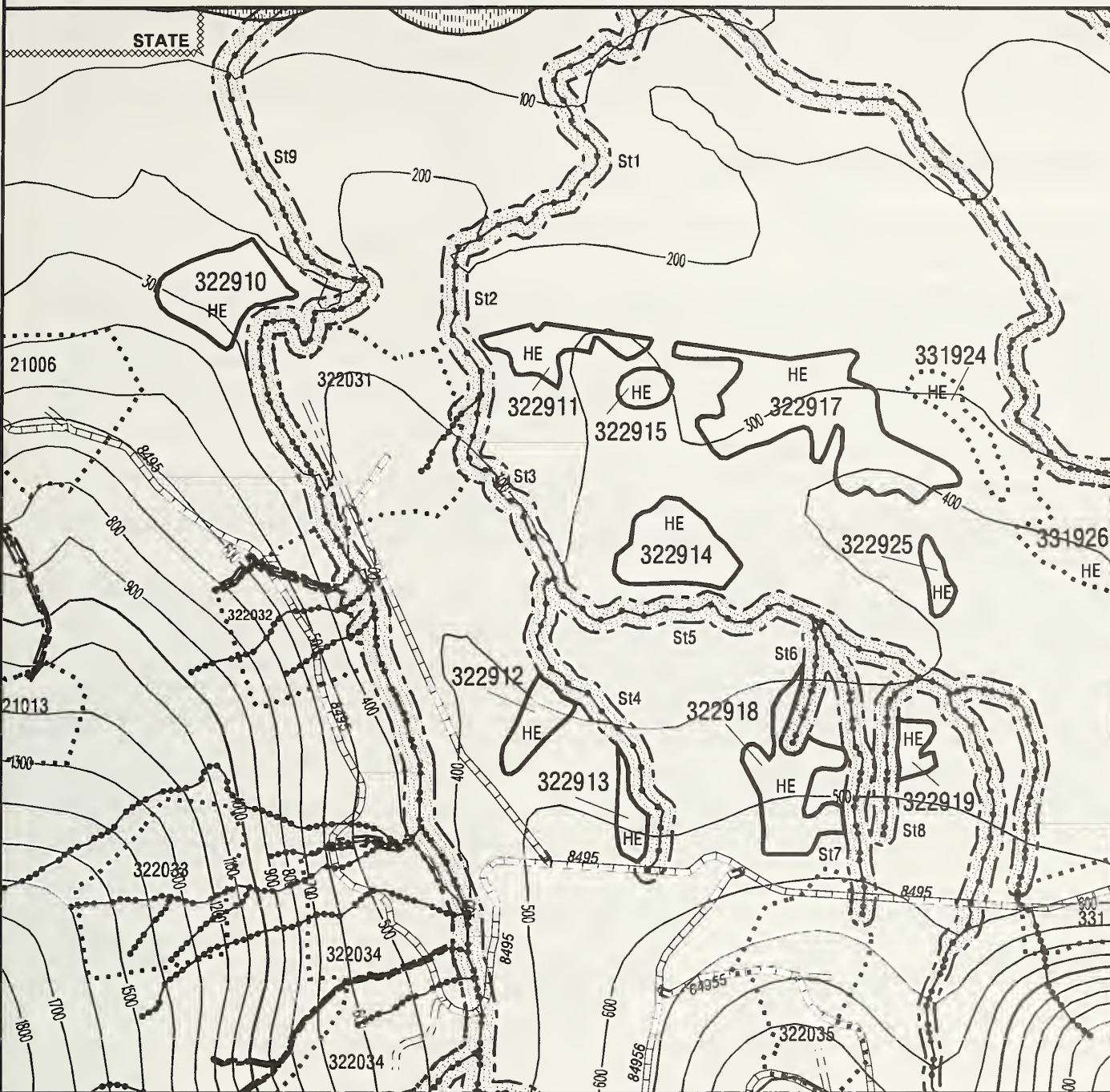


# PORT HOUGHTON / CAPE FANSHAW FIELD UNIT CARD

VCU: 82 UNIT(S): GROUP322 ALTERNATIVE(S): 4

ACRES: 96.88 TOTAL NET MBF: 281.1 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1989 FLIGHT LINE: 25 ROLL NO.: 888 PRINT NO.: 175



<ul style="list-style-type: none"> <li> EXISTING ROAD</li> <li> PROPOSED ROAD</li> <li> PROPOSED TEMP ROAD</li> <li> UNIT BOUNDARY</li> <li> ADJACENT UNIT</li> <li> SETTING BOUNDARY</li> <li> CONTOUR LINE</li> <li> OWNERSHIP BOUNDARY</li> <li> RIPARIAN MGMT AREA</li> <li> CLASS 1 STREAM</li> <li> CLASS 2 STREAM</li> <li> CLASS 3 STREAM</li> <li> CLASS 4 STREAM</li> </ul>	<p><b>LOGGING SYSTEM CODES:</b></p> <p>HE = HELICOPTER</p> <p>SV = SHOVEL</p> <p>C = CABLE</p> <p>St1 STREAM NO. IN NARRATIVE</p> <p> ROAD BEGINS</p> <p> LANDING &amp; NUMBER</p> <p> EAGLE TREE</p>	<ul style="list-style-type: none"> <li> STREAM TTRA BUFFER</li> <li> BEACH/ESTUARY BUFFER</li> <li> SEAWATER</li> <li> LAKE</li> <li> LAKE PROTECTION ZONE</li> </ul>
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CONTOUR INTERVAL 100 FEET  
SCALE 1:15840 1 INCH = 1320 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## I. UNIT IDENTIFICATION

UNIT #: 331GROUP

MAP: Group 331

## STAND CHARACTERISTICS

Generally mosaic and multiple storied stands in the W. hemlock/Y. cedar and mixed conifer series. These stands include scattered Sitka spruce and Mt. Hemlock in the overstory. The stand is composed of medium size, moderate quality sawtimber with significant amounts of utility pulp. Slopes range from 0 to 30% on aspects from NW to NE slopes. These areas are adjacent to low site areas and muskeg. Overstory ages are 150 to 300 years old with moderate defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage, defoliators, and windthrow. The understory is typically <20% stocked with 20 to 40 year old W. hemlock and Sitka spruce which occur in groups throughout with poor to fair vigor. Ground cover is moderate to dense vaccinium associated with rusty menziesia, and skunk cabbage. Significant new windthrow found throughout the area. Site is fair over the unit as a whole. The areas proposed for group selection are generally isolated to the point that road construction is not desirable or economically feasible.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter yard to expanded landings at unit 322031, 331045, 331046, or 332066

**Visual Resource Management:** VQO partial retention. Openings hidden or not seen. Should meet VQO.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Stream 1 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16 (2) Stream 2 (LC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No harvest within the Riparian Management Area, defined by the side-slope break or 100ft. horizontal distance, whichever is greater. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (3) Stream 3, 4 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Suitable black bear and red-breasted sapsucker habitat.

**Cultural / Recreation / Subsistence:** Group selection is at least 100 foot elevation and 1,000 feet from shore- outside of high potential for cultural resource impact.

## INTEGRATED RESOURCE OBJECTIVES

(Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities)

- (1) Provide moderate timber volume and value productivity from isolated stands that are predominantly in volume class IV.
- (2) Provide vertical and cavity nesting habitat structure within managed stands.
- (3) Enhance proportionality by adding significant areas of volume class 4

## RATIONALE FOR ALTERNATIVE SELECTION

**Group Selection:** Create one to two acre openings removing all trees except occasional yellow cedar legacy trees as described below. Openings should fit the landscape which in this case is near flat to gentle slope. In areas adjacent to class III streams use the streams as boundaries for some openings. Do not cross a stream with an opening unless multiple forks are involved, then use the largest fork as a boundary. Leave Sitka spruce and Yellow cedar on the edge of the openings when found in the area. Avoid leaving trees infected with Dwarf mistletoe on the edge of the openings. This scheme will require 4 to 5 entries over 100 years where almost all the timber will be removed from these areas. During the ensuing entries it will be possible to designate patches of reserve trees or reserve areas. These areas should have a significant amount of snags, green culls, young timber or natural thrifty reproduction. Large (30">) defective Yellow cedar can be left throughout the area at any time they are encountered. This prescription will provide long term vertical habitat, mitigate visual impacts, and assist proportionality.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

This is an area group selection on timberlands generally in the volume class 4 strata at the northern end of the 331 watershed. These areas were photo mapped and visited during the 1994 field season to confirm their viability as timberland in the volume class 4 strata. The areas designated are small hills and elevated areas that are often surrounded or adjacent to low site and muskeg areas. The actual location of the individual group openings will not occur until final layout. The areas identified are at least 1000 feet from the shoreline of Port Houghton and 120 feet or more from designated Class II and higher streams. Select boundaries that appear windfirm.

### Forest Productivity Activities:

During precommercial thinning favor Sitka spruce and Yellow cedar; also treat regeneration for dwarf mistletoe as needed.

## MONITORING PLAN

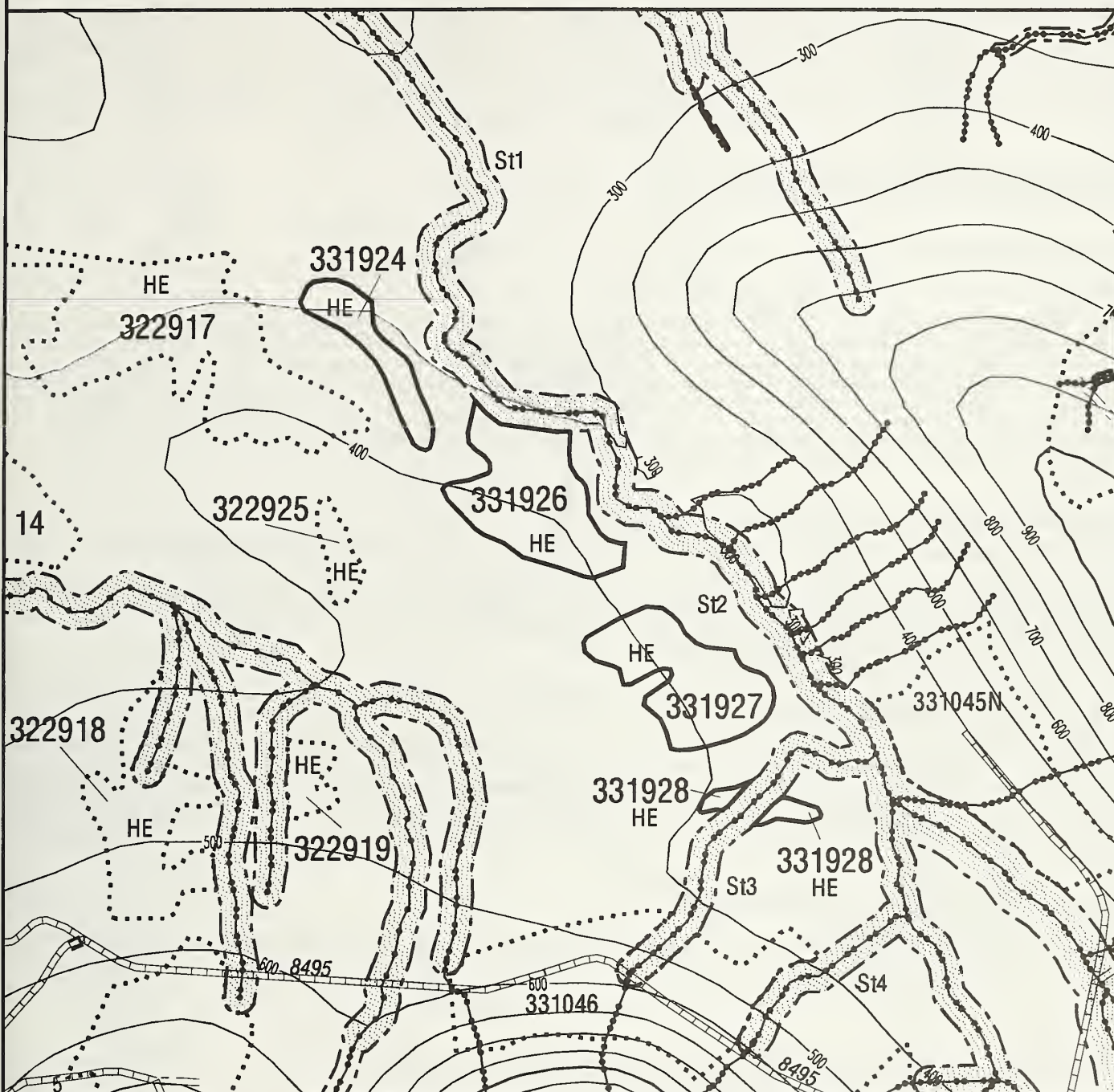
Year	Activity	Standard	Who
1	Unit accept and completion of erosion control	TS Contract	Sale Admin
1	Stocking svy. & reserve tree assess.	Silvi Rx	Silviculturist
3	Stocking svy.	>150 trees/acre, well-distributed	Silviculturist
5	Stocking svy. and reforestation certification	>150 trees/acre, well-dist., free to grow	Silviculturist


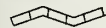
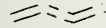









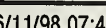


VCU: 83 UNIT(S): GROUP331 ALTERNATIVE(S): 4

ACRES: 36.57 TOTAL NET MBF: 128.9 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 50 ROLL NO.: 684 PRINT NO.: 141



-  EXISTING ROAD
-  PROPOSED ROAD
-  PROPOSED TEMP ROAD
-  UNIT BOUNDARY
-  ADJACENT UNIT
-  SETTING BOUNDARY
-  CONTOUR LINE
-  OWNERSHIP BOUNDARY
-  RIPARIAN MGMT AREA
-  CLASS 1 STREAM
-  CLASS 2 STREAM
-  CLASS 3 STREAM
-  CLASS 4 STREAM


## LOGGING SYSTEM CODES:

HE = HELICOPTER



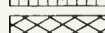


SV = SHOVEL

C = CABLE

St1 STREAM NO. IN NARRATIVE

 ROAD BEGINS LANDING & NUMBER

★ EAGLE TREE

-  STREAM TTRA BUFFER
-  BEACH/ESTUARY BUFFER
-  SEAWATER
-  LAKE
-  LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:12000 1 INCH = 1000 FEET



# PORT HOUGHTON/CAPE FANSHAW UNIT SUMMARY CARD

Page 1 of 1

## UNIT IDENTIFICATION

UNIT #: 332GROUP

MAP #: GROUP 332

## STAND CHARACTERISTICS

Generally mosaic and multiple storied stands in the W. hemlock/Y. cedar and mixed conifer series. These stands include scattered Sitka spruce and Mt. Hemlock in the overstory. The stand is composed of medium size, moderate quality sawtimber with significant amounts of utility pulp. Slopes ranges from 0 to 30% on aspects from NW to NE slopes. These areas are adjacent to low site areas and muskeg. Overstory ages are 150 to 30 years old with moderate defect and significant amounts of cedar decline, mistletoe, mechanical/animal damage, defoliators, and windthrow. The understory is typically <20% stocked with 20 to 40 year old W. hemlock and Sitka spruce which occur in groups throughout with poor to fair vigor. Ground cover is moderate to dense vaccinium associated with rusty menziesia, and skunk cabbage. Significant new windthrow found throughout the area. Site is fair over the unit as a whole. The areas proposed for group selection are generally isolated to the point that road construction is not desirable or economically feasible.

## RESOURCE CONSTRAINTS AND OPPORTUNITIES

**Roads / Logging Systems:** Helicopter yard to expanded landings at unit 322031, 331045, 331046, or 332066.

**Visual Resource Management:** VQO partial retention. Openings hidden or not seen. Should meet VQO.

**Soils / Geology:** No concerns.

**Fisheries / Watershed:** (1) Streams 1, 3 - See Class IV overall prescription in the Resource Opportunities and Constraints section of Appendix A. Cleanout required. Apply BMP 13.16 sec. 3c. (2) Streams 2, 4, 5, 6, 7, 9 (HC) - See Class III overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, defined by the V-notch side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMP 13.16 sec. 3b. (3) Stream 8 (MC) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the remainder of the Riparian Management Area, defined as within the channel side-slope break. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16. (4) Stream 10 (MM) - See Class I and II overall prescription in the Resource Opportunities and Constraints section of Appendix A. No commercial harvest within the Riparian Management Area, greatest of floodplain, riparian vegetation or soils, riparian associated wetland fens or 120ft horizontal distance. Apply unit specific windfirm zone distance or see Table 1 of Appendix A. Apply BMPs 12.6, 12.6a and 13.16.

**Wildlife:** Suitable black bear and red-breasted sapsucker habitat.

**Cultural / Recreation / Subsistence:** Group selection is at least 100 foot elevation and 1,000 feet from shore- outside of high potential for cultural resource impact.

## INTEGRATED RESOURCE OBJECTIVES

{Note: To meet forest plan and project objectives in light of resource Constraints & Opportunities}

- (1) Provide moderate timber volume and value productivity from isolated stands that are predominantly in volume class IV.
- (2) Provide vertical and cavity nesting habitat structure within managed stands.
- (3) Enhance proportionality by adding significant areas of volume class IV.

## RATIONALE FOR ALTERNATIVE SELECTION

Create one or two acre openings removing all trees except occasional Yellow cedar legacy trees as described below. Openings should fit the landscape which in this case is near flat to gentle slope. In areas adjacent to Class III streams use the streams as boundaries for some openings. Do not cross a stream with an opening unless multiple forks are involved, then use the largest fork as a boundary. Leave Sitka spruce and Yellow cedar on the edge of the openings when found in the area. Avoid leaving trees infected with Dwarf mistletoe on the edge of the openings. This scheme will require 4 to 5 entries over 100 years where almost all the timber will be removed from these areas. During the ensuing entries it will be possible to designate patches of reserve trees or reserve areas. These areas should have a significant amount of snags, green culls, young timber or natural thrifty reproduction. Large (30">) defective Yellow cedar can be left throughout the area at any time they are encountered. The prescription will provide long term vertical habitat, mitigate visual impacts, and assist proportionality.

## INTEGRATED MANAGEMENT PRESCRIPTION

### Description of Unit Boundary Determination:

This is an area group selection on timberlands generally in the volume class 4 strata at the northern end of the 332 watershed. These areas were photo-mapped and visited during the 1994 field season to confirm their viability as timberland in the volume class 4 strata. The areas designated are small hills and elevated areas that are often surrounded or adjacent to low site and muskeg areas. The actual location of the individual group openings will not occur until final layout. The areas identified are at least 1,000 feet from the shoreline of Port Houghton and 120 feet or more from designated class II and higher streams. Select boundaries that appear windfirm.

### Forest Productivity Activities:

During precommercial thinning favor Sitka spruce and Yellow cedar; also treat regeneration for dwarf mistletoe as needed.

## MONITORING PLAN

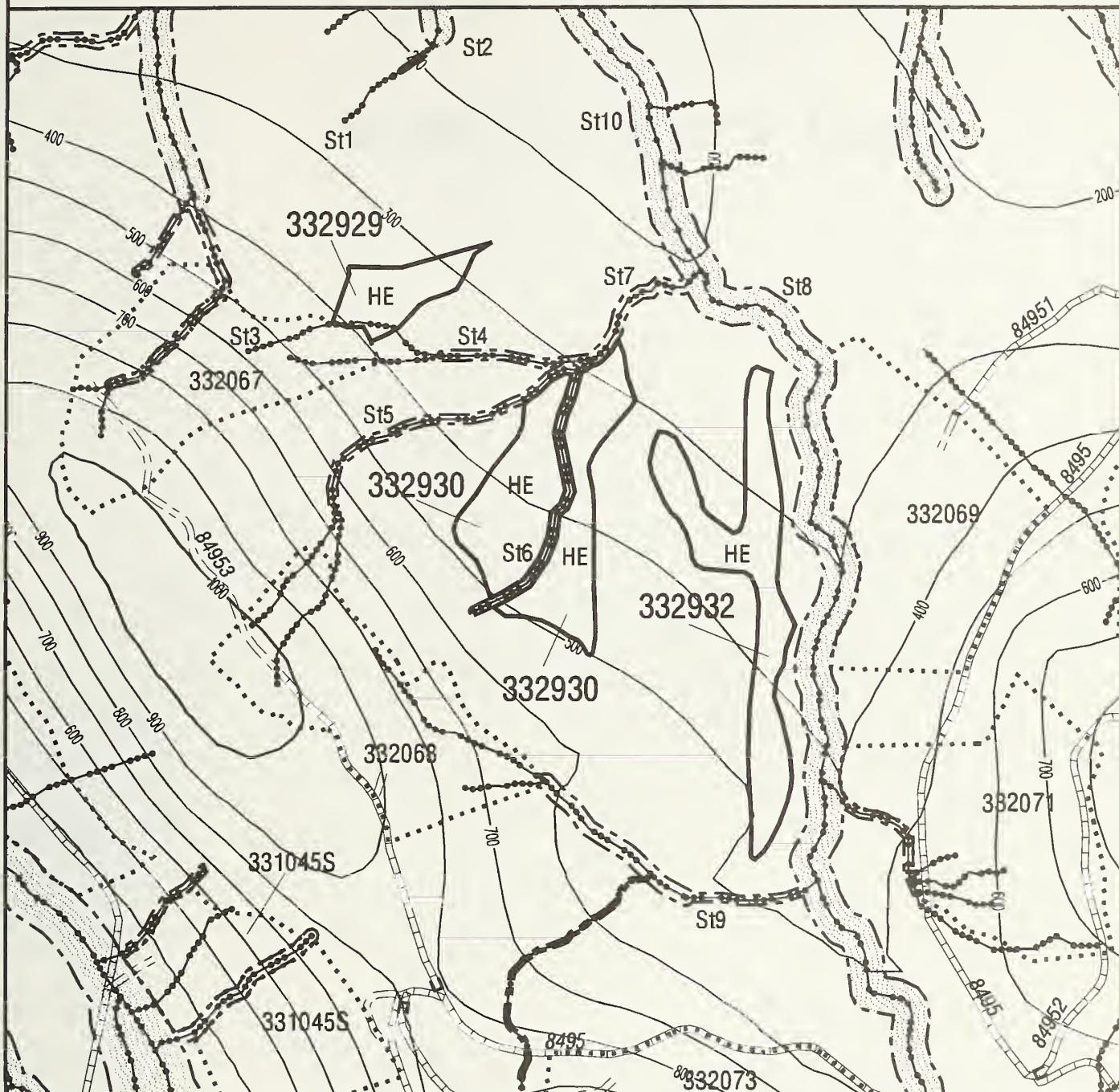
Year	Activity	Standard	Who
3	Stocking exam	>50 Sitka spruce & Y. cedar per acre	Silviculturist
5	Stocking exam	>300 well distributed TPA	Silviculturist
15	Precommercial thinning survey	>300 TPA with crown closure	Silviculturist
16-25	Schedule precommercial thinning	200 TPA free to grow	Silviculturist



VCU: 83 UNIT(S): GROUP332 ALTERNATIVE(S): 4

ACRES: 50.04 TOTAL NET MBF: 141.9 QUAD(S): SUMB5 QUARTER QUAD(S): SE

PHOTO INFO: YEAR: 1987 FLIGHT LINE: 51 ROLL NO.: 684 PRINT NO.: 148



## LOGGING SYSTEM CODES:

HE = HELICOPTER

SV = SHOVEL

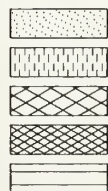
C = CABLE

St1 STREAM NO. IN NARRATIVE

□ ROAD BEGINS

○ LANDING &amp; NUMBER

★ EAGLE TREE



STREAM TTRA BUFFER

BEACH/ESTUARY BUFFER

SEAWATER

LAKE

LAKE PROTECTION ZONE

CONTOUR INTERVAL 100 FEET  
SCALE 1:12000 1 INCH = 1000 FEET







# **Appendix B**

## **Road Summary Cards**



# W. H. Murray

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945

1871-1945



# Appendix B

## Port Houghton/Cape Fanshaw EIS Road Summary Form

### Description of Data Fields and Comments on Use

The road summary cards were developed from the Logging System and Transportation Plan for this project and the road cards completed by resource discipline leaders.

The road numbers may change between the Chatham and Stikine Areas even if the road, itself, is unchanged.

Resource boxes describe the specific concerns identified by each task leader.

Provided below is a description of each of the data fields with acronyms.

**Alternative:** Identifies each of the alternatives that the road occurs within along with the road miles within alternative and associated VCU.

**Road Status:** P = Proposed

**Service Life:** L = Long term--service life at least 10 years  
S = Short term--service life less than 10 years  
I = Intermittent--closed/open to traffic as required  
T = Temporary--required only for 1-2 years for logging access, and not for subsequent management activities

**Functional Class:** C = Collector Road  
L = Local Road

#### Post Harvest Maintenance Level

1 = Road closed more than 1 year; drainage maintained  
2 = Road maintained for minor use by high clearance vehicles

Maps are located at the end of this appendix.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 6130 (see Map 2)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>						
	86	1.26	P	LONG - TERM	C	2
	87	3.47	P	LONG - TERM	C	2
	89	3.65	P	LONG - TERM	C	2
Total Miles		8.38				
<b>4</b>						
	86	1.26	P	LONG - TERM	C	2
	87	3.47	P	LONG - TERM	C	2
	89	3.65	P	LONG - TERM	C	2
Total Miles		8.38				
<b>5</b>						
	86	1.26	P	LONG - TERM	C	2
	87	3.47	P	LONG - TERM	C	2
	89	3.65	P	LONG - TERM	C	2
Total Miles		8.38				
<b>7</b>						
	86	1.26	P	LONG - TERM	C	2
	87	3.47	P	LONG - TERM	C	2
	89	3.65	P	LONG-TERM	C	2
Total Miles		8.38				

**Roads:** A total of 8 fish streams were identified on this road. **Segment 1 (U-118 to U-146):** This segment provides efficient access with grades ranging from +10 to -8%. Expect a good rock source from station 395+00 to 398+00. Three Class II fish streams were identified. At approximate M.P. 0.3 install a 40' bridge. At approximate M.P. 1.6 install a 70' bridge. At approximate M.P. 2.1 install 144" x 91" CMPA to allow fish passage. **Segment 2 (U-146 to approximate M.P. 3.85):** This segment provides efficient access with grades ranging from +1 to +8% and from -1 to -8%. Angled traverse in the buffer were required to maintain minimum standards for grade and alignment on the mainline. One Class II fish stream was identified. At approximate M.P. 3.8 install a 70' bridge. **Segment 3 (approximate M.P. 3.85 to End):** This is segment generally straight forward construction on moderate (less than or equal to 40%) side slopes and benches. Rolling grades with maximum favorable 10%, maximum adverse 8% <50'; end haul construction. Four fish streams (2 Class I and 2 Class II) were identified. At approximate M.P. 5.7 (U-151) install a 48" CMP as this Class II crossing is a the end of habitat, so no fish passage is required. At approximate M.P. 6.2 (U-153) install approximate 40' bridge to cross this Class I. The road will require on through-cut (approx. 17'). Many Class III streams will require culverts and incidental cuts/fills less than or equal to 10'. This road presents no road construction difficulties. Several Class III V-notches were crossed. Possible rock pits were observed at stations 142+50, 173+90, 175+23, 212+20 and 241+00.

**Soils:** No concerns.

**Fisheries/Hydrology:** Consider bridges for all Class II crossings; stream gradient at these crossings is minimal, although crossings outside units 27105, and 27102 are subject to heavy peak flow. The crossings outside of Units 27105 and 27102 also appear to be subject to heavy peak flows. The crossings in Units 27107, 27109, and 27110 are Class III crossings; the crossing in 27109 is a steep v-notch. Provide fish passage on Class I and II streams. Recommend a hydrologic analysis following final location to determine drainage structure and size.

**Wildlife:** Road crosses potential mountain goat travel corridor in vicinity of Units 27101 and 27102. Minimize construction disturbance.

**Visuals/Recreation:** VQO: Maximum modification. Most of road not seen. Partial retention. Viewed from background at 8± miles. Should meet VQO unless fills for culverts or rockpit openings face view, are massive, and light colored.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 6133 (see Map 2)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	89	1.36	P	LONG-TERM	L	1
4	89	1.36	P	LONG-TERM	L	1
5	89	1.36	P	LONG - TERM	L	1

**Roads:** 68+41 stations. 2 stations of 15% adverse. Moderate grades  $\leq 10\%$  for remainder of road. Moderate sideslopes. Hoe/end dump construction. Two Class II stream crossings at Station 7+68 and Station 15+75. The road crosses 2 Class II streams (stations 7+68 and 15+75), install 30' log stringer bridge.

**Soils:** No concerns.

**Fisheries/Hydrology:** Class II crossings at 7+68 is a 4' wide channel, 15% grade, contained by boulders. Class II crossing at 15+75 is 7' wide channel, minor cutting colluvial contained. Recommend a hydrologic analysis following final location to determine drainage structure and size.

**Wildlife:** No concerns.

**Visuals/Recreation:** No concerns.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 8460 (see Map 4)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	81	3.56	P	SHORT-TERM	L	1
4	81	2.73	P	SHORT-TERM	L	1
5	81	4.06	P	SHORT-TERM	L	1

**Roads:** Road 8460 leaves the Goldbelt, Inc. land approximately 3,000 ft north of 8460/8461 junction on stiff 15% favorable grade. Forest Service boundary at 126+32. At junction 8461, 8460 turns NW across muskegs on generally slight adverse rolling grades to first stream crossing, then SE to SW on generally rolling grades below muskegs on east side of major ridge to junction of 84601. 8460 pitches sharply up (-12%) through saddle and turns northwest through Unit 311141 on rolling  $\pm 7\%$  grades to crossing at head of major valley. 8460 then turns generally southeast through scrub and muskeg to junction 84603 at station 216+58. 8460 then turns to east side of timbered ridge on 8-10% adverse grades to end of road at 238+60. Major relocation from plan at two major drainages to avoid V-notches (Stations 58+40, 166+73). Road traverses private property. Access is not guaranteed and will have to be negotiated with Goldbelt, Inc.

**Soils:** No concerns.

**Fisheries/Hydrology:** Streams have been reclassified Class III. No concerns. Road relocated to avoid major V-notches and unstable slopes. No concerns.

**Wildlife:** Road may cross potential mountain goat travel corridor. May isolate habitat to southwest.

**Visuals/Recreation:** Most of road is not seen except for discrete locations on the small boat route. Foreground trees will be screened at hill top crossing between -42 and -141. VQO: Modification Road should meet VQO.

**Cultural:** No concerns.



## PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD

### ROAD 8461 (see Map 4)

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	81	0.88	P	SHORT-TERM	L	1
4	81	0.37	P	SHORT-TERM	L	1
5	81	0.88	P	SHORT-TERM	L	1

**Roads:** Final location resulted generally in light balanced design construction over moderately sloping terrain supplemented by end-dump design in low and marshy areas and across drainages. Substantial deviation from paper plan was made necessary to avoid sensitive soils on steep slopes. Approximately 9,600 ft. of field located road was abandoned (but not destroyed) as a result of economic analysis of construction conditions and logging systems.

**Soils:** From elevation 1,950 to 2,250. Opposite side of the ridge from Unit 311131. Portion of this section of road crosses through an area originally mapped as Class IV soil stability. After field investigation this area was re-classified to Class III soil stability. There are a series of ridges that the road crosses while climbing the hill; however, the swales seem stable and the convex ridges are moderately to well drained. Surface water management is particularly important in this segment of road. Culverts should be placed in the swales, and grade breaks built into the running surface. Suggest using a slight adverse grade on the road between the culvert and the crest of each convex ridge to divert surface water off of the road. Also suggest that this section of road be built without a ditch, and that log haul be limited to summer haul only.

**Fisheries/Hydrology:** Road was relocated to avoid stream crossings and poor soil conditions. No concerns.

**Wildlife:** Road may cross potential mountain goat travel corridor. May isolate goat habitat to the southwest.

**Visuals/Recreation:** VQO: modification seen in background from small boat route, far background from ferry route. Road realigned to eliminate switchback between Unit 311144 and road east of 311144 will not be seen due to topography and remaining trees. Unit cut and fill slopes between 0+00 and Unit 311144 to meet VQO.

**Cultural:** No concerns.



# **PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD** **ROAD 8494 (see Maps 3 and 5)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
4	83	1.18	P	LONG - TERM	L	1
	89	1.08	P	LONG - TERM	L	1
	Total Miles	2.26				
7	89	1.08	P	LONG - TERM	L	1

**Roads: Segment 1:** Road generally easy construction on rolling topography. Sideslopes average 15-20%. Rock pit inferred at Station 62+40. Road deviates from paper plan to protect stream buffer.

**Segment 2:** Road is generally easy construction on rolling topography. Sideslopes are characteristically 20-30%. From station 267 to 277, requires full bench/end haul construction on steep sideslopes of 60-80%. Two major pitches (1700' & 1000') of adverse 12% required to bypass rock bluffs and steep sideslopes. Maximum favorable grade of 12%. 3 short spurs (total 8+50 station) access landings in Unit 333093 and 2 spurs (6 stations) of temporary road access Unit 33301. 2 switchbacks (80', 70') are needed to access units beyond 333093. Portions of road will be used as a continuous landing.

**Soils:** No concerns.

**Fisheries/Hydrology:** Crossings in 29124 (now combined with 29126) are Class III.

**Wildlife:** Avoid disturbance to nesting goshawks known to be in vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Visuals/Recreation:** VQO: Modification/Maximum Modification. Road is generally on lower slopes and buffered by trees. Should meet VQO.

**Cultural:** No concerns.



## PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD

### ROAD 8495 (see Maps 1 and 3)

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>						
	82	5.95	P	LONG - TERM	C	2
	83	5.94	P	LONG - TERM	C	2
Total Miles		11.89				
<b>4</b>						
	82	5.95	P	LONG - TERM	C	2
	83	5.94	P	LONG - TERM	C	2
Total Miles		11.89				
<b>6</b>						
	83	3.52	P	LONG - TERM	C	2
<b>7</b>						
	82	5.95	P	LONG - TERM	C	2
	83	5.94	P	LONG - TERM	C	2
Total Miles		11.89				

**Roads: Segment 2:** Locations follows gentle terrain with moderate grades. Two large stream crossings noted at stations 380+27 and 468+54. Road location was altered from paper plan to avoid encroachment on goshawk tree located 950 feet north of station 487+60. Potential rock quarry at 505+55.

**Segment 3:** Fairly heavy balanced design construction indicated between stations 190 & 233 and between stations 300 & 310. Balance of segment is light balanced design construction augmented with rock fill borrow. Possible rock sources indicated near stations 194 and 262 (rock ledge requiring temporary adverse road). Identified fish habitats crossed at station 233+90, at station 262+42, and at station 324+64. Some 8% adverse grades between 190 & 233 and between 288 & 352 to access landing locations.

**Segment 4:** Location follows gentle terrain to station 190+00 (@ "Twin Pond Saddle") with moderate grades and construction consisting of balanced design augmented with rock fill borrow. This segment has stream crossing over identified fish habitat at stations 133+28, 40+95, 59+13, and 60+70. Possible rock sources were observed as mounds occurring in muskeg areas between station 0+00 and station 35+00.

**Soils:** No concerns.

**Fisheries/Hydrology:** Crossing 1 at station 133+28. Crossing 2 at station 233+90. Crossing 3 at station 324+64 - No concerns. There is a hydrology concern with the crossing at station 133+28. Station 324+64 - Consider moving downstream to point where stream channel is more stable and defined. Station 344+90 - No concerns.

Flagged road crossing near 332074; Class I fish habitat. Occasional small tributaries are in muskeg off of main channel. Crosses Class II stream @ station 133+28 - recommend bottomless crossing. Station 133+28 - Avoid damage to adjacent creek entering south bank of channel east of flagged crossing. Station 60+30 - Channel gradient = 8%, sideslopes ~30%, bedrock control without major sign of mass wasting in area. Recommend a hydraulic analysis following final location to determine drainage structure and size.

**Wildlife:** Road follows edge of mountain goat habitat. Avoid disturbance to nesting goshawks known to be in the vicinity. Prior to harvest, search for nest to ensure that goshawk guidelines in effect are implemented.

**Visuals/Recreation:** VQO: Modification. Viewed in background from small boat route. Road in area gently tipped to viewer @ about 5% from shore to base of hill. Trees in foreground should screen road. Should meet VQO.

VQO: Partial Retention/Modification. Viewed in background and midground from small boat route and far background from ferry. Potential roadcuts on 8% slope should be less than 10' height unless topo anomalies. Should meet VQO. @ rock pits minimize height of excavated face and avoid locating in units where there are no trees to screen.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 8496 (see Maps 2 and 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>						
	83	5.07	P	LONG - TERM	C	2
	89	0.20	P	LONG - TERM	C	2
Total Miles		5.27				
<b>4</b>						
	83	5.07	P	LONG - TERM	C	2
	89	0.20	P	LONG - TERM	C	2
Total Miles		5.27				
<b>5</b>						
	83	5.07	P	LONG - TERM	C	2
	89	0.20	P	LONG - TERM	C	2
Total Miles		5.27				
<b>6</b>						
	83	5.07	P	LONG - TERM	C	2
	89	0.06	P	LONG - TERM	C	2
Total Miles		5.13				
<b>7</b>						
	83	5.07	P	LONG - TERM	C	2
	89	0.20	P	LONG - TERM	C	2
Total Miles		5.27				

**Roads:** Road is alternative route to bypass difficult crossing in original 8496 road: Total length 14,998' of straight-forward construction, ~half in muskeg. Grades: maximum 12% favorable, 8% adverse. Two major stream crossings at stations 14+90 and 86+25. Two switchbacks, 65' radius @  $\pm 4\%$ , 80' radius @ 6%.

**Soils:** No concerns.

**Fisheries/Hydrology:** Road crosses Class II at 85+ 25 channel 37' wide 5% grade. Road crosses Class II at 14+90 channel 30' wide, 10% grade, stable. No concerns if channels are not constricted. Recommend a hydrologic analysis following final location to determine drainage structure and size.

**Wildlife:** No concerns.

**Visuals/Recreation:** No concerns.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 8497 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	83	1.80	P	INTERMITTENT	L	1
4	83	1.80	P	INTERMITTENT	L	1
6	83	1.80	P	INTERMITTENT	L	1
7	83	1.18	P	INTERMITTENT	L	1

**Roads:** Road 8497 joins 8495 at station 191+40 west of a large saddle and climbs at rolling grades on edge of muskegs until it crosses the northeast side of the major ridge system. Once on the sidehill, 8497 climbs at 12% to a potential rock source at 25+00 - 33+00 where it slacks to 6-8%. Two switchbacks at 43+00 and 50+00 raise the road higher on the sidehill. Road climbs at 10% after switchbacks for about 1/4 mile before pitching to 13% to reach a stable point above an ancient block fault. The road then descends at 10% to reach favorable ground and landings near the ridgetop. There are no major stream crossings and two sections of end haul - 23+00 to 35+00 and 63+00 to 69+00. Potential quarry contains an estimated 60,000 cy.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** Road may affect potential wildlife travel corridor in saddles at drainage divide and along ridgeline.

**Visuals/Recreation:** VQO: Maximum modification east of Unit 331049, remainder modification. Not seen between Units 332074 & 331049. Otherwise seen in the background from the ferry on the Stikine side or the small boat route on the Port Houghton side. Road follows topography, rock quarry low and long, dark colored rock should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 8498 (see Maps 1 and 2)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>						
	82	1.99	P	LONG - TERM	C	2
	82	1.78	P	LONG - TERM	C	2
	86	0.05	P	LONG-TERM	L	2
Total Miles		3.82				
<b>4</b>						
	82	1.78	P	LONG - TERM	L	1
	82	1.99	P	LONG - TERM	C	2
	86	0.05	P	LONG - TERM	C	2
Total Miles		3.82				
<b>5</b>						
	82	1.99	P	LONG - TERM	C	2
	82	1.78	P	LONG - TERM	L	1
	86	0.05	P	LONG - TERM	C	2
Total Miles		3.82				
<b>7</b>						
	82	1.78	P	LONG - TERM	L	1
	82	1.49	P	LONG - TERM	C	2
	86	0.05	P	LONG - TERM	C	2
Total Miles		3.32				

**Roads:** Road is generally easy to construct except for 4.4 station of end haul ( $\Delta$  253 to 257.4). Waste site available on ridge ending at station 241. Road has two sections of maximum adverse grade (-12%): station 252 - 259 and 267 - 270 (total -10 station) Remainder of road from station 241 to stream at station 306 has grades from -4% to -8%. Possible rock pits noted at station 273+00, 278+00, 323+50.

**Soils:** Road relocated. Now OK.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Maximum Modification, Modification, Partial Retention. Partial Retention area seen on Stikine side in far background from ferry 8 $\pm$  miles with observer far below (1000'). Should meet VQO.  
VQO: partial retention, modification and maximum modification. Switchback has potential visual problem. Only middle of road will have cuts and these should not be significant. Overstory removal between switchbacks. Remaining regeneration ( $\pm$ 30 ft. height) should buffer road construction. Otherwise should meet VQO. Rock pit in 013 should orient face south; leave fringe trees to buffer view from north.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 8499 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	82	1.76	P	INTERMITTENT	L	1
4	82	1.76	P	INTERMITTENT	L	1
7	82	1.76	P	INTERMITTENT	L	1

**Roads:** Road is generally easy construction and midslope; sideslopes 25% - 45%. The road varies from the paper plan in that it is located higher on the slope; minimizing stream buffer crossings and V-notch disturbance. To reach desirable V-notch crossings and landing locations; approximately 7 station of  $\approx 16\%$  favorable, approximately 4 station of  $\approx 15\%$  favorable, and approximately 3 stations  $\approx 13\%$ , were utilized.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns. Road has no fish creek crossings. All crossings are Class III.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Partial Retention (above elevation 400). Otherwise max mod. Viewed in the midground from small boat route. Road conforms to topography. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 44001 (see Map 2)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2						
	87	1.20	P	LONG - TERM	L	2
	89	1.25	P	LONG - TERM	L	2
Total Miles		2.45				
4						
	87	1.20	P	LONG - TERM	L	2
	89	1.25	P	LONG - TERM	L	2
Total Miles		2.45				
5						
	87	1.20	P	LONG - TERM	L	2
	89	1.25	P	LONG - TERM	L	2
Total Miles		2.45				
7						
	87	1.20	P	LONG - TERM	L	2
	89	1.25	P	LONG - TERM	L	2
Total Miles		2.45				

**Roads:** Mostly easy construction on moderate grades, mostly under 12%, with approximately 10 stations 14-15%, one large fish stream crossing at station 125+95. 3 stations full bench/end haul. Did not locate alternative route in NE since it is much longer road than required, and additional crossing(s) of fish buffer(s). At approximate M.P. 2.4 road crosses a Class II fish stream, install a 60' bridge.

**Soils:** No concerns.

**Fisheries/Hydrology:** There are three Class II crossings outside 29121; all are low gradient streams. Provide fish passage on Class I and II streams.

**Wildlife:** Road follows potential mountain goat travel corridor for 1 1/4 mile SW from Road 6131. Recommend alternate access to this area if possible. Access might be possible with connection northeast to Road 8496.

**Visuals/Recreation:** Not seen.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 44002 (see Map 2)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	89	2.77	P	LONG - TERM	L	1
4	89	2.77	P	LONG - TERM	L	1
5	89	2.77	P	LONG - TERM	L	1
7	89	2.77	P	LONG - TERM	L	1

**Roads:** Simple road construction - rock quarry site at 1+50, no issues. At approximate M.P. 0.6 road crosses a Class II fish stream, install a log stringer bridge.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Partial Retention. Viewed in background from ferry route. Size and color of rock quarry site could be issue. Orient excavation face away from view.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 44003 (see Maps 1 and 2)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>						
	86	0.73	P	LONG - TERM	L	1
	87	0.25	P	LONG - TERM	L	1
Total Miles		0.98				
<b>4</b>						
	86	0.73	P	LONG - TERM	L	1
	87	0.25	P	LONG - TERM	L	1
Total Miles		0.98				
<b>5</b>						
	86	0.73	P	LONG - TERM	L	1
	87	0.25	P	LONG - TERM	L	1
Total Miles		0.98				
<b>7</b>						
	86	0.73	P	LONG - TERM	L	1
	87	0.25	P	LONG - TERM	L	1
Total Miles		0.98				

**Roads:** Road climbs through 2 switchbacks on gentle sideslopes crossing several small Class III streams in V-notches and gullies. One short section of 60%+ above bench in Unit 27108. Road ends in unit 27108.

**Soils:** No concerns.

**Fisheries/Hydrology:** All crossings on this section of road are Class III; the west stream in Unit 26103 is a V-notch stream.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Maximum modification/partial retention (above 1100 ft.). Road generally follows contour - should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 44050 (see Map 5)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
4	89	0.82	P	LONG - TERM	L	1

**Roads:** Easy construction on sideslopes of generally 15-25%. Maximum adverse grade of 6% and favorable 5%. Road deviates from paper plan to reduce grades and follow edge of muskeg.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns. One Class III crossing.

**Wildlife:** No concerns.

**Visuals/Recreation:** No concerns.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 61222 (see Map 5)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
4	89	0.91	P	LONG-TERM	L	1
7	89	0.91	P	LONG-TERM	L	1

**Roads:** Generally easy construction on midslopes of 20-30% (but to 50%). Maximum adverse grade of 5%. A section of 15% favorable is required to locate the road on a bench and to skirt a slide. The switchback radius is 80', grade 2%.

**Soils:** No concerns.

**Fisheries/Hydrology:** Road crosses no streams.

**Wildlife:** No concerns.

**Visuals/Recreation:** No concerns.

**Cultural:** No concerns.



## PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD

### ROAD 84601 (see Map 4)

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>	81	1.00	P	SHORT-TERM	L	1
<b>4</b>	81	0.55	P	SHORT-TERM	L	1
<b>5</b>	81	1.00	P	SHORT - TERM	L	1

**Roads:** 84601 leaves 8460 on gentle favorable grades, proceeding SE along the toe slope before turning westerly around the major ridge nose. Grades to 12% adverse are employed to avoid unneeded length above the muskeg through scrub timber before the road turns southeasterly and proceeds at 10% adverse to again round the ridge nose easterly at  $\pm 2\%$  to Landing 311145-2. This segment was selected as system end of road because it has more potential for extension. No developable quarries were identified on the route but the 350-foot end haul section at 13+00 has landform characteristics which indicate rock may be present above the road location. Three potential borrow pits were identified above 23+00, 51+00, and the end of road. Wet, soft areas (especially 37+00 - 43+00) will require fill/rock.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** Visual quality objective: Modification, viewed in the midground from the small boat route. Road appears to conform to topography. Excessive cuts or fills with light colored rock would exceed VQO. Otherwise road would be enclosed by trees and meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84602 (see Map 4)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	81	0.46	P	SHORT-TERM	L	1
5	81	0.46	P	SHORT - TERM	L	1

**Roads:** Road 84602 leaves 8460 at station 187+70 on 8460 line and climbs sharply (-15%) to a stream crossing at 6+00. Road then rolls to -10% favorable to sidehill at 10+00, continuing -10% to station 23+00. Changes to -5% favorable. Continues to Landing 31146-7, end system road. Temporary Road 31146-5 continues 572 feet to Landing-5 at -15% favorable grades. Stream at 7+45 reclassified from Class II to Class III by fisheries team. Minor end haul/rock-borrow source at 10+50 - 12+50 and at Landings 5+7. Future extension of 84602 will turn right at present end of road.

**Soils:** No concerns.

**Fisheries/Hydrology:** Stream was reclassified Class III. Bedrock banks stable. No concerns.

**Wildlife:** Road crosses marginal mountain goat habitat.

**Visuals/Recreation:** VQO: Modification at back of ridge and likely not seen.

**Cultural:** No concerns.



## PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD

### ROAD 84612 (see Map 4)

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	81	0.85	P	SHORT-TERM	L	1
5	81	0.85	P	SHORT - TERM	L	1

**Roads:** This route was initially planned as part of Route 8461 (which was rerouted because of steep rocky terrain and sensitive soil stability). It generally follows available benches with balanced design construction planned. One Class II stream is crossed at station 5+10. One V-notch is crossed at station 18+56 within Unit 311144 and is planned for split-yarding for a setting boundary between Landings No. 1 and No.2. Moderate grades are designed. No rock sources are apparent. Route in field remains marked as 84612.

**Soils:** This road is well located - most of the side slopes are thirty percent or less and the ground below is also gentle. There are some wet spots, but mass failures are not anticipated.

**Fisheries/Hydrology:** Road crosses no fish streams.

**Wildlife:** Road may cross potential mountain goat corridor. May isolate goat habitat to the southwest.

**Visuals/Recreation:** VQO: Modification seen in background from small boat route, far background from ferry route. Road realigned to eliminate switchback between Unit 311144. Road east of Unit 311144 will not be seen due to topography remaining trees. Limit cut and fill slopes between 0+00 and limit size of Unit 311144 to meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84950 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
4	83	0.52	P	SHORT - TERM	L	1
6	83	0.15	P	SHORT - TERM	L	1

**Roads:** Grades not over 8% except for 2 stations of 15% favorable. Simple hoe/end-dump construction.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** No concerns.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84951 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>	83	0.31	P	SHORT - TERM	L	1
<b>4</b>	83	0.31	P	INTERMITTENT	L	1
<b>6</b>	83	0.31	P	INTERMITTENT	L	1
<b>7</b>	83	0.31	P	INTERMITTENT	L	1

**Roads:** Allowed grade tolerances facilitated modification of location and reduction of planned length from 1.26 to 0.94 miles (See road card for 332061. Recorded as system road.). The resulting advantage reduces the hauling distance from Unit 332060. Construction is light consisting mainly of end-dumping. No sources of rock are apparent.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification. Viewed background from small boat route. 5% slope @ shoreline. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84952 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	83	0.62	P	INTERMITTENT	L	1
4	83	1.52	P	INTERMITTENT	L	1
6	83	1.52	P	INTERMITTENT	L	1
7	83	1.52	P	INTERMITTENT	L	1

**Roads:** 84952 road was extended to access 332072. This action eliminates significant adverse while shortening the haul for this unit. No pit sites were located on the road until reaching the ridge top. Grades range from -2 - +15%. Expect 3 stations of end haul. Hoe & drill work are expected on the upper portions. Landing 332070-1 requires a 15' cut. This material will be used to elevate the spur.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification. Viewed in the background from the small boat route. Road @ edge of unit, below ridgeline and requires minimum cut and fill. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84953 (see Maps 1 and 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	83	0.43	P	SHORT - TERM	L	1
4	83	0.43	P	INTERMITTENT	L	1
6	83	0.43	P	INTERMITTENT	L	1
7	83	0.43	P	INTERMITTENT	L	1

**Roads:** Location takes advantage of numerous benches high on NE side of a prominent ridge. Construction generally light balanced design supplemented by end-dumping rock fill borrow in low areas, marshy segments and drainage crossings. Designed grades do not exceed 10% adverse and favorable. No rock sources were observed. Location advantages benches and gentle terrain to enhance balanced design construction and facilitate landing chances for present and future logging plans. No rock sources indicated on or near location. Two temporary roads are located to additional landing sites to facilitate skyline carriage clearance across a series of benches. Some adverse grades to 12% are designed and located to enhance alignment and construction.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification. Road viewed in the midground from the small boat route. If road is level, w/minimal cut and fills, could meet VQO. Viewed in background from small boat route. Road fairly level on below ridgeline. Marginal cuts and fills except on @ south side which faces south away from VQO. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84954 (see Maps 1 and 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	83	0.86	P	SHORT - TERM	L	1
4	83	0.86	P	INTERMITTENT	L	1
7	83	0.86	P	INTERMITTENT	L	1

**Roads:** Location largely on flats and benches with light, balanced section design and/or end-dump construction. No apparent rock sources encountered. Two streams of known fish habitat crossed, one at station 19+02 and at station 25+30. Location terminated in Unit 332045 because expected cost of extension to additional units exceeded estimated cost of helicopter logging.

**Soils:** No concerns.

**Fisheries/Hydrology:** Road location crosses two Class II streams perpendicularly with fish habitat. No V-notches crossed. Otherwise road located outside stream buffers. Road crosses third additional Class II stream; resident fish seen near crossing above the barriers located below. Recommend a hydrologic analysis following final location to determine drainage structure and size.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification (between Units 68 & 65 & mid 45 to intersection) otherwise partial retention. Road designed should meet VQO. Road located on flats and benches avoiding heavy construction (sidehill cuts), to mitigate prefield concern.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84955 (see Maps 1 and 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>	82	1.40	P	INTERMITTENT	L	1
<b>4</b>	82	1.40	P	INTERMITTENT	L	1
<b>7</b>	82	1.40	P	INTERMITTENT	L	1

**Roads:** Road is generally easy construction, with both midslope and ridgetop location. Road grades are favorable, ranging from 5% to 14%. Road contains two switchbacks, located at station 0+00 and station 29+22. Road alignment is generally fair. Road varies from the paper plan in that two of the ridgetop switchbacks were eliminated, as well as the Class I stream crossing.

**Soils:** No concerns.

**Fisheries/Hydrology:** Road location altered to avoid stream crossing.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification. Viewed in background from small boat route except @ center road located @ edge of unit. Cuts and fills less than 9' height. Silviculture prescription for unit is to retain green culls and snags which should minimize impact. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84956 (see Maps 1 and 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	82	2.32	P	INTERMITTENT	L	2
4	82	2.32	P	INTERMITTENT	L	2
7	82	2.32	P	INTERMITTENT	L	2

**Roads:** Road is midslope in location and is generally easy construction. Road grades range from 12% adverse to 12% favorable. Road alignment is fair. There is a Class II stream crossing at station 81+07. Suggest removal of crossings at stations 121+36 and 134+00, upon completion of harvest activities, due to their location in debris/snow chutes. Road varies from paper plan in that the crossing at station 81+07 was moved due to steep slopes, the road was extended into Unit 322044, and the crossing at the main creek was eliminated due to fish habitat concerns. Recommend a hydrologic analysis following final location to determine drainage structures and size.

**Soils:** No concerns.

**Fisheries/Hydrology:** Road crosses Class II creek on north boundary of Unit 322042. Location okay. Provide fish passage on all Class I and II streams.

**Wildlife:** No concerns.

**Visuals/Recreation:** VOQ: Max Mod/Mod. Viewed in far background. No concerns.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84957 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
4	82	0.77	P	SHORT - TERM	L	1

**Roads:** Road 84957 accesses Unit 322031. It is 44+60 stations in length with 2 stations of 12% adverse. All other grades ≤10% adverse. Gentle side slopes, hoe/end dump construction. A 240' spur heads NE from 37+18 to Landing #2. 84957 begins at 364+52 of Road 8495.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Partial Retention/Modification. Road is on level ground. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84961 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>	83	1.86	P	INTERMITTENT	C	2
	83	1.18	P	INTERMITTENT	L	1
	Total Miles	3.04				
<b>4</b>	83	1.18	P	INTERMITTENT	L	1
	83	1.86	P	INTERMITTENT	C	2
	Total Miles	3.04				
<b>5</b>	83	1.18	P	INTERMITTENT	L	1
	83	1.86	P	INTERMITTENT	C	2
	Total Miles	3.04				
<b>6</b>	83	1.93	P	INTERMITTENT	L	1
	83	1.86	P	INTERMITTENT	C	2
	Total Miles	3.79				
<b>7</b>	83	1.93	P	INTERMITTENT	L	1
	83	1.86	P	INTERMITTENT	C	2
	Total Miles	3.79				

**Roads:** Grades range from -3 to +15%. Roads 849611, 84915 & 3 "T" spurs are accessed. Expect rock to be found at 333083-2, 3 & 4. Rock is available along the road in 333084. Majority of route is simple hoe and end dump construction. Drill work is required in 333084.

**Soils:** No concerns.

**Fisheries/Hydrology:** Stream section lowered to Class III due to large falls occurring down stream.

**Wildlife:** Road may affect potential wildlife travel corridor through saddle on ridge.

**Visuals/Recreation:** Road not seen for most of distance. Viewed from small boat route through Unit 333081. Unit is oblique to view and if road is designed to minimize cut and fill, road should meet VQO of Modification.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84962 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
4	83	0.61	P	SHORT - TERM	L	1
6	83	0.61	P	SHORT - TERM	L	1
7	83	0.61	P	SHORT - TERM	L	1

**Roads:** Road 84962 recorded erroneously as Temporary Road 332054. All field markings refer to Temporary Road 332054. Road leaves 8496 at station 95+50 and proceeds northerly across scrubby flats on generally adverse rolling grades ( $\pm 5\%$ ) to a stream crossing at 7+65, thence at favorable rolling grades to 8% to the toeslope at 11+00. Road follows toeslope + benches on  $\pm 5$ -10% grades to junction of Temporary Road 332054-2 (station 23+93). Road then turns NE across scrubby flat on rolling  $\pm 8\%$  grades to Landing 332045-3, length 33+45. Possible rock source at 0+50 - 1+50 on Temporary Road 332054-2.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** Background, VQO: Modification.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84963 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
4	83	0.78	P	INTERMITTENT	L	1
6	83	0.78	P	INTERMITTENT	L	1
7	83	0.78	P	INTERMITTENT	L	1

**Roads:** Road is easy construction. Two segments of grade in excess of the layout specifications were used to minimize the Class I stream buffer; ~2+67 stations of 15% adverse and ~3+55 stations of 16% favorable. Horizontal alignment is fair. Provide fish passage on the Class I stream. Potential rock pit south of Landing 4. Road varies from the paper plan in that it was extended to the NW to access additional volume. Portion was original Road 84631.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification. Viewed in the background from small boat route. Flat land and foreground trees should screen road. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84981 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>	82	0.89	P	SHORT - TERM	L	1
<b>4</b>	82	0.89	P	SHORT - TERM	L	1
<b>5</b>	82	0.89	P	SHORT - TERM	L	1

**Roads:** Road begins at station 0+00 to station 3+30 at Road 322039-2. Road accesses Landings 321018-2,3. Moderate adverse grades 5-10%. Approximately 300' of 15% favorable Grade. 2 switchbacks both 70'R. Located station 14+56 (8% adverse) and station 29+00 (10% adverse). Easy construction on gentle/moderate side slopes. Total stations = 44+25.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** Road may affect potential wildlife track corridor in saddle on ridge.

**Visuals/Recreation:** No concerns.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84982 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	82	0.90	P	INTERMITTENT	L	1
4	82	0.90	P	INTERMITTENT	L	1
5	82	0.90	P	INTERMITTENT	L	1
7	82	0.90	P	INTERMITTENT	L	1

**Roads:** 61 stations of generally simple construction. 5.5 stations of full bench/end haul. Grades mostly moderate, with 5 stations of 15% favorable, to avoid steep ground. 2 potential rock pits at 25+00 and 45+00 at upper slope location.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** Road may affect potential wildlife travel corridor through saddle on ridge.

**Visuals/Recreation:** VQO: Modification. Viewed in the background from small boat route. Oblique to view. Should meet VQO.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 84984 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>						
	82	1.99	P	LONG - TERM	L	1
	86	0.15	P	LONG - TERM	L	1
Total Miles		2.14				
<b>4</b>						
	82	1.99	P	LONG - TERM	L	1
	86	0.15	P	LONG - TERM	L	1
Total Miles		2.14				
<b>5</b>						
	82	1.99	P	LONG - TERM	L	1
	86	0.15	P	LONG - TERM	L	1
Total Miles		2.14				
<b>7</b>						
	82	1.99	P	LONG - TERM	L	1
	86	0.15	P	LONG - TERM	L	1
Total Miles		2.14				

**Roads:** No construction difficulties. Road located at grades of +10 to -7% with some short sections of -9% and +15%. Two sections of end haul at Station 88+00, 94+65, and 102+00. Rock pits observed at Station 36+00, 55+14, 79+00 and 105+82. Two large stream crossings at Stations 54+70 and 96+06.

**Soils:** No concerns.

**Fisheries/Hydrology:** Class II stream changed to Class III due to gradient and barriers. No concerns. Recommend a hydrologic analysis following final location to determine drainage structure and size.

**Wildlife:** Road may affect potential wildlife travel corridor through saddle at drainage divide.

**Visuals/Recreation:** Background/Not seen. VACH, VQOM. No major concerns.

**Cultural:** No concerns.



# **PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD** **ROAD 849502 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	82	1.75	P	INTERMITTENT	L	1
4	82	1.75	P	INTERMITTENT	L	1

**Roads:** Road location follows relatively gentle terrain with moderate grades. End hauling is required from station 7+50 to 9+50 and from station 19+00 to 22+50. Possible rock quarry located at station 21+00.

**Soils:** No concerns.

**Fisheries/Hydrology:** Class II stream flagged near 321020. No other stream crossing. No concerns as long as the integrity for the banks is maintained.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Partial Retention. Viewed in the midground from the small boat route. Large bench cuts in this area could result in modification or maximum modification exceeding VQO. Minimize cuts and fills.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 849503 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	82	0.98	P	INTERMITTENT	L	1
4	82	0.98	P	INTERMITTENT	L	1

**Roads:** Road was field identified as Road 321022-2. Majority of road grade within Unit 321022 is 15% in order to access upper landings. Potential rock quarry located at station 36+00. Final 10 stations are located on wet ground with gentle side slopes.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Partial Retention. Viewed in the midground from the small boat route. Large bench cuts in this area could result in modification or maximum modification exceeding VQO. Minimize cuts and fills.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 849605 (see Map 1)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	83	0.19	P	LONG-TERM	L	2
4	83	0.19	P	LONG - TERM	L	2
5	83	0.19	P	LONG-TERM	L	2
6	83	0.19	P	LONG-TERM	L	2
7	83	0.19	P	LONG-TERM	L	2

**Roads:** Road is generally easy hoe construction from the junction with Road 8496 to station 2+68. Provide for fish passage on the Class II stream at ~1+63. Moderate hoe construction, with minor drill work, will be required from station 2+68 to the end of the specified road; ~station 11+04. Grades range from 10% adverse to 10% favorable. Road 849605 provides access to a major rock source in Unit 332050.

**Soils:** No concerns.

**Fisheries/Hydrology:** There is one Class I crossing west of 332050. Provide fish passage on this stream.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: partial retention, viewed on background from small boat route.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 849611 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
<b>2</b>	83	0.76	P	INTERMITTENT	L	1
<b>4</b>	83	0.76	P	INTERMITTENT	L	1
<b>5</b>	83	0.76	P	INTERMITTENT	L	1
<b>6</b>	83	0.76	P	INTERMITTENT	L	1
<b>7</b>	83	0.76	P	INTERMITTENT	L	1

**Roads:** 849611 extends for 48+52 and has a temporary spur of 2+45 at 15+00. Potential rock pit 23+00 to 25+00: complex construction of 4.5 stations at 22+50. Maximum grades are -2 to -5%. Route accesses an upper bench and provides excellent yarding. No significant crossing.

**Soils:** No concerns.

**Fisheries/Hydrology:** No concerns.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification. Most of road not seen. Where seen, screened by down hill trees.

**Cultural:** No concerns.



**PORT HOUGHTON/CAPE FANSHAW ROAD SUMMARY CARD**  
**ROAD 849615 (see Map 3)**

Alternative	VCU	Road Miles	Road Status	Service Life	Functional Class	Post-harvest Maintenance Level
2	83	0.34	P	INTERMITTENT	L	1
4	83	0.46	P	SHORT-TERM	L	1
5	83	0.46	P	SHORT - TERM	L	1
6	83	0.46	P	SHORT-TERM	L	1
7	83	0.46	P	SHORT-TERM	L	1

**Roads:** Simple hoe construction is planned. No rock sources were located. Road 38+30 station provides efficient access for yarding Units 332056 & 332057. Only minor streams were crossed.

**Soils:** See prefield on Unit 332056 and 332057. No concerns in vicinity of road.

**Fisheries/Hydrology:** Road crosses a Class III stream in Unit 332056 and one V-notch Class III stream in Unit 332057. Road should follow topographic contours closely at V-notch to minimize fill.

**Wildlife:** No concerns.

**Visuals/Recreation:** VQO: Modification. Viewed in background from small boat route. Road uses minimal cut and fill. Should meet VQO.



**Cultural:** No concerns.

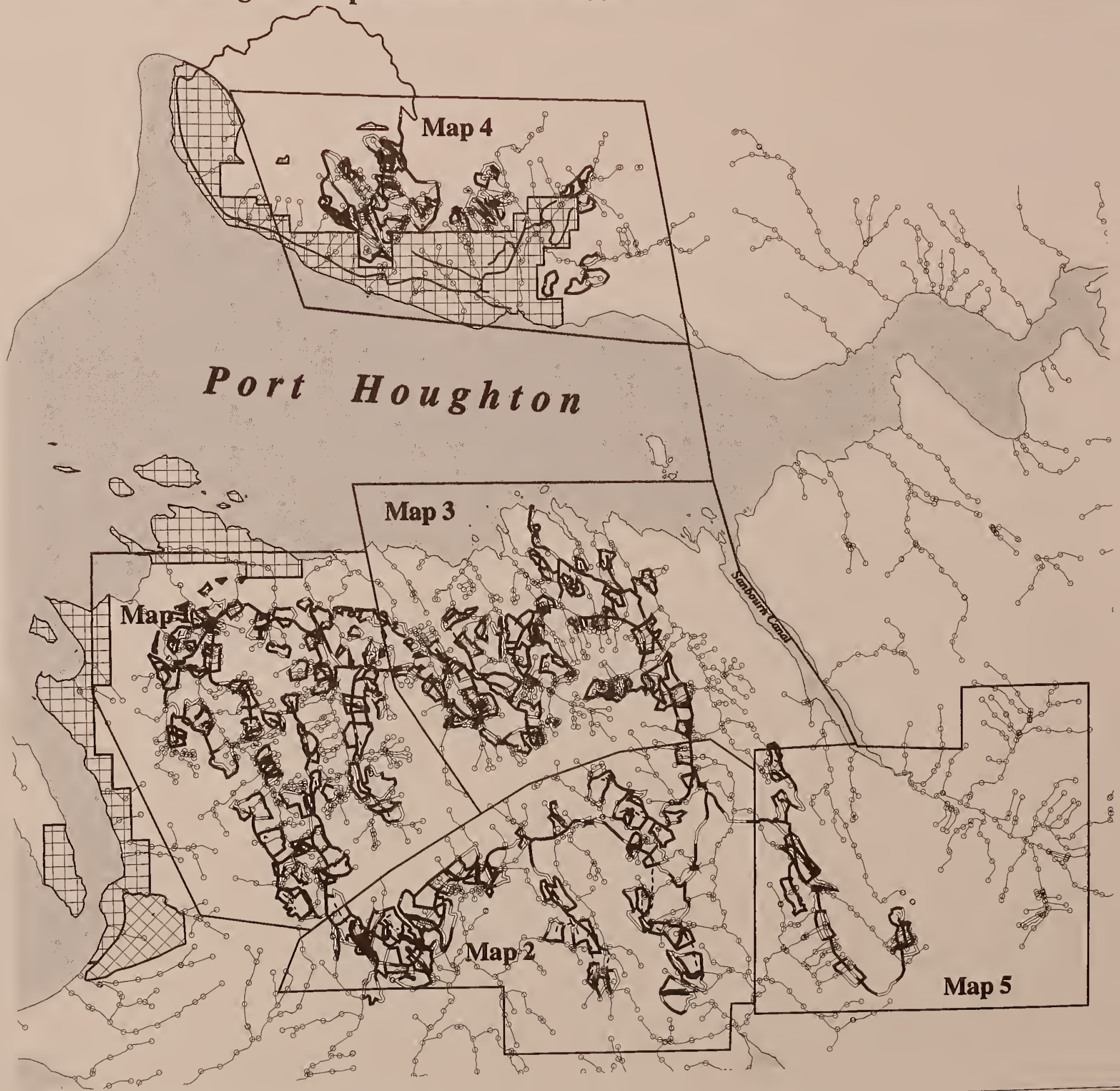


# Port Houghton/Cape Fanshaw Road Pool



## Legend

-  Research Natural Area
-  Private Lands
-  Roads
-  Temporary Roads
-  Existing Goldbelt Roads
-  Streams
-  Proposed Bridges Over 40 Feet









## Port Houghton/Cape Fanshaw Road Pool

## Map 1









## Port Houghton/Cape Fanshaw Road Pool

## Map 2









## Port Houghton/Cape Fanshaw Road Pool

### Map 3









## Port Houghton/Cape Fanshaw Road Pool

## Map 4



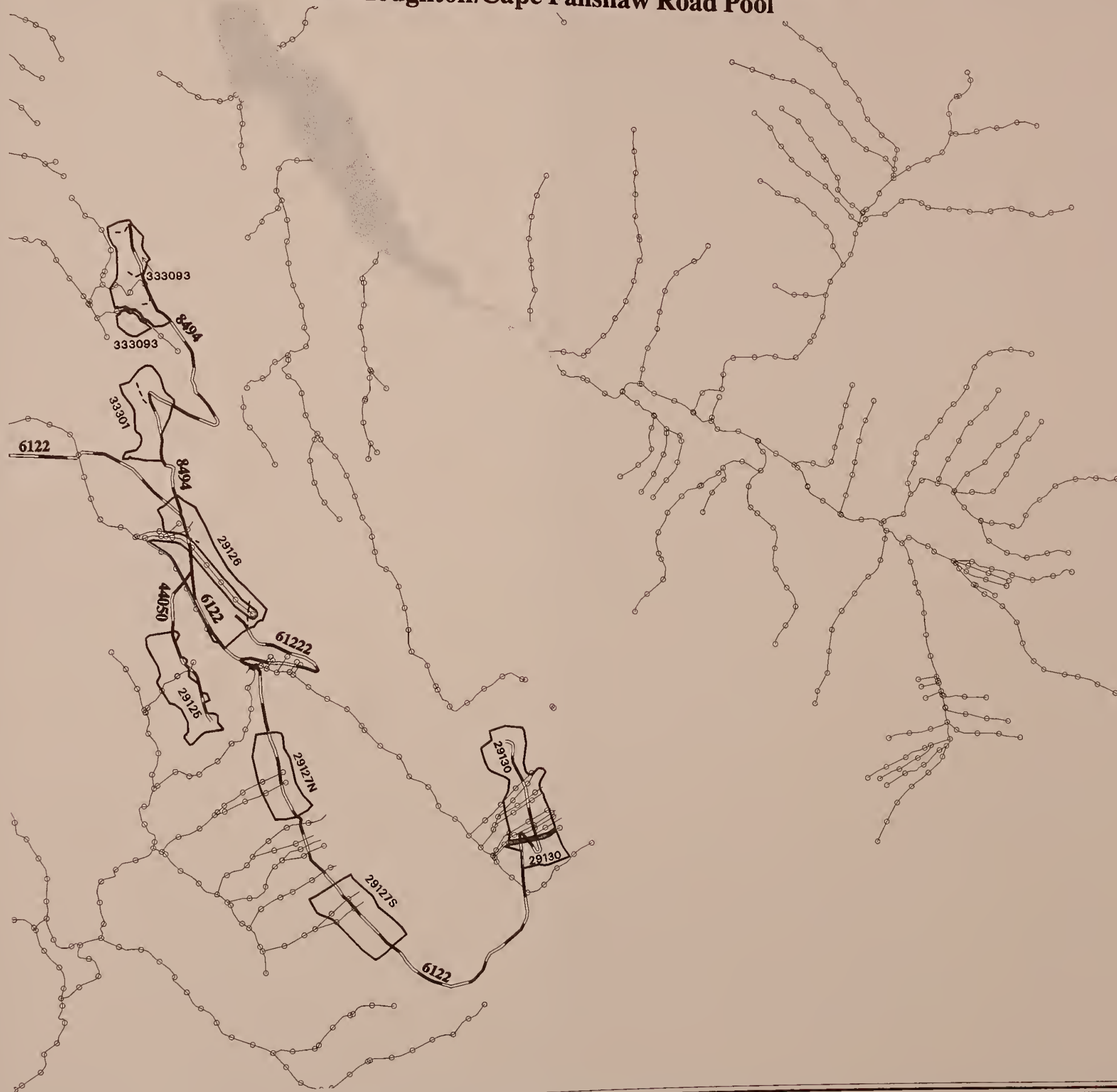






# Port Houghton/Cape Fanshaw Road Pool

Map 5









# **Appendix C**

## **Road Management Objectives**



# Appendix A

How to use the book  
and the web



# Appendix C

## Road Management Objectives

### Definitions

#### Road Status:

- E = Existing road.
- E(R) = Existing road, scheduled for reconstruction.
- P = Proposed for construction.

**Service Life** (the length of time that a facility is expected to provide a specified service):

- Long-term** = service life at least 10 years
- Intermittent** = closed/open to traffic as required
- Short-term** = service life less than 10 years

**Service Level** (describe the significant traffic characteristics and operating conditions for a road. The levels reflect factors such as speed, travel time, traffic interruptions, freedom to maneuver, safety, driver comfort, convenience, and operating costs):

- Level C** = Meets minimum standards for safety, use of traffic controls, for other than resource activity, is frequent, accommodates all vehicle types, 5-15 mph speed limit, curve radius held to a minimum due to terrain.
- Level D** = Meets minimum standards for safety, all traffic is discouraged other than that associated with the single purpose, driver comfort not high as designated for log truck traffic only, 0-5 mph speed limit, curve radius held to a minimum due to terrain.

**Functional Classification** (the way in which a road services land and resource management needs and the character of service it provides):

- A** = **Arterial road.** Provides service to large land areas and usually connect with other arterial roads or public highways. (Due to the remoteness of the Port Houghton/Cape Fanshaw project area, and the



fact that the road systems planned for the area are small and not interconnected, no roads are classified as arterials.)

**C = Collector road.** Serves smaller land areas than an arterial road. Usually connects arterial roads to local roads or terminal facilities.

**L = Local road.** Connects terminal facilities with other local, collector, or arterial road, and public highways. Usually local roads are for a single purpose, e.g., timber harvest.

**Post-Harvest Maintenance Level** (the level of service provided by, and maintenance required for, a specific road after harvest):

**Level 1** = Level of maintenance assigned to intermittent service roads during the period they are not open and maintained for motor vehicle traffic. At this level, basic custodial maintenance is performed to keep damage to adjacent resources at an acceptable level and to perpetuate the road to facilitate future management activities. In the Port Houghton/Cape Fanshaw RMO summary tables, this applies to short-term roads after the purpose for which they were constructed is completed. At this level, drainage structures are removed and the roadbed is waterbarred, to prevent damage to adjacent resources.

**Level 2** = Level of maintenance normally assigned to roads needed by high clearance vehicles between periods of harvest. Planned post-harvest vehicle traffic in the Port Houghton/Cape Fanshaw project area is expected to be either high clearance vehicles (HCV) or all-terrain vehicles (ATV), to accomplish administrative and recreation access objectives. Roads will be logged out and brushed as necessary to provide passage for ATV's. The road prism will be maintained to provide for passage of high clearance vehicles. Barricades will be placed at the entrance of each road, maintained at this level, for ATV access, to effectively block vehicles greater than 50" in width.

**Future Commercial Timber Volume** (a determination of whether there is additional timber that this road could access in the future).

**YES - NO**

**Silviculture/Administration** (access needed to perform administration or post sale silviculture practices, and method of access).

**HCV** = High clearance vehicle, pick-up type 4-wheel drive.

**ATV** = All terrain vehicle, smaller 4-wheel or motorcycle.

**Post-Harvest Public/Recreation Traffic Strategies** (Strategies employed where necessary to control any class or type of traffic. Use to prevent damage to the roadway, to abate unsafe traffic conditions, or to control use to meet other



specific management direction such as protecting wildlife habitat or achieving semiprimitive recreation objectives):

- Encourage** = Encourage public use by means of appropriate signing, public notification, and active maintenance of the road prism.
- Accept** = Public use is allowed, but not encouraged, while road is maintained for administrative access.
- Discourage** = Public access is discouraged by means of allowed alder growth at road entrance, non-removal of blowdown, or road prism deterioration within acceptable environmental limits. Road may also be signed to discourage use (e.g., Not Maintained for Public Traffic).
- Eliminate** = Road is physically blocked to after sale traffic. Where prescribed for long-term intermittent roads, this strategy is achieved by placing impassable barricades at road entrances. On short-term roads, removal of drainage structures effectively block traffic.
- Prohibit** = Public access is prohibited by a road order (i.e., CFR closure). Implementation of this strategy on remote road systems such as Port Houghton/Cape Fanshaw, may require the installation of gates, in addition to public notification and appropriate signing.

**Post-Harvest Resource Concerns** (denotes when that specific resource had a concern with this particular road).



# ALTERNATIVE 2

## ROAD MANAGEMENT OBJECTIVES

Table 1: Alternative 2

VCU	ROAD NUMBER	ROAD MILES	ROAD STATUS	SERVICE LIFE	SERVICE LEVEL	FUNCT. CLASS	POST-HARVEST MAINT. LEVEL	MAINTENANCE STRATEGY	ACCESS NEEDS/TRAFFIC STRATEGIES			POST-HARVEST RESOURCE CONCERNS (SEE ROAD CARDS)				
									FUTURE COMM. VOL.	SILVIC/ ADMIN	PUBLIC/ RECREATION	HYDRO/ SOILS	W/L	SUB-SIS.	FISH	
81	8460	3.56	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE	X	X	X		
81	84601	1.00	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE					
81	84602	0.46	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE		X			
81	8461	0.88	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE	X	X			
81	84612	0.85	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE					
82	8495	5.95	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	X	X	X		
82	849502	1.75	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
82	849503	0.98	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
82	84955	1.40	P	INTERMITTENT	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT					
82	84956	2.32	P	INTERMITTENT	D	L	2	STORMPROOF	YES	HCV, 20yrs	PROHIBIT	X				
82	8498	1.99	P	LONG - TERM	D	C	2	ACTIVE	YES	HCV, 20yrs	PROHIBIT		X			
82	8498	1.78	P	LONG - TERM	D	C	2	ACTIVE	YES	HCV, 20yrs	PROHIBIT		X			
82	84981	0.89	P	SHORT - TERM	D	L	1	STORAGE	YES	HCV, 20yrs	PROHIBIT		X			
82	84982	0.90	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X			
82	84984	1.99	P	LONG - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT					
82	8499	1.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
83	8495	5.94	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	X	X	X		
83	84951	0.31	P	SHORT - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT					
83	84952	0.62	P	INTERMITTENT	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT					
83	84953	0.43	P	SHORT - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT					
83	84954	0.86	P	SHORT - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT					
83	8496	5.07	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	X	X	X		
83	849605	0.19	P	LONG - TERM	D	L	2	ACTIVE	NO	HCV, 20yrs	DISCOURAGE	X				
83	84961	1.86	P	INTERMITTENT	D	C	2	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	X	X	X		
83	84961	1.18	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X		
83	849611	0.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X				
83	849615	0.34	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X				
83	8497	1.80	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
86	44003	0.73	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
86	6130	1.26	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT		X	X		
86	8498	0.05	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV	PROHIBIT		X			
86	84984	0.15	P	LONG - TERM	D	L	1	STORMPROOF	YES	HCV	PROHIBIT					
87	44001	1.20	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV	PROHIBIT					
87	44003	0.25	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
87	6130	3.47	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT		X	X		
89	44001	1.25	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV	PROHIBIT					
89	44002	2.77	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
89	6130	3.65	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT		X	X		
89	6133	1.36	P	LONG - TERM	C	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT					
89	8496	0.20	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	PROHIBIT	X	X	X		



# ALTERNATIVE 4

## ROAD MANAGEMENT OBJECTIVES

Table 2: Alternative 4

VCU	ROAD NUMBER	ROAD MILES	ROAD STATUS	SERVICE LIFE	SERVICE LEVEL	FUNCT. CLASS.	POST-HARVEST MAINT. LEVEL	MAINTENANCE STRATEGY	ACCESS NEEDS/TRAFFIC STRATEGIES			POST - HARVEST RESOURCE CONCERNS (SEE ROAD CARDS)			
									FUTURE COMM. VOL.	SILVIC/ ADMIN.	PUBLIC/ RECREATION	HYDRO/ SOILS	W/L	SUB- S.	FISH
81	8460	2.73	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE	X	X	X	---
81	8460.1	0.55	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE	---	---	---	---
81	8461	0.37	P	SHORT-TERM	D	L	1	OBLITERATE	NO		ELIMINATE	X	X	---	---
82	8495	5.95	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	X	X	X	---
82	849502	1.75	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	X
82	849503	0.98	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
82	84955	1.40	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	---
82	84956	2.32	P	INTERMITTENT	D	L	2	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	---	---	---	---
82	84957	0.77	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	X
82	8498	1.78	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
82	8498	1.99	P	LONG - TERM	D	C	2	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	---	X	X	---
82	84981	0.89	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	X	X	---
82	84982	0.90	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
82	84984	1.99	P	LONG - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT	X	X	---	---
82	8499	1.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	8494	1.18	P	LONG - TERM	C	L	1	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	---	---	---	---
83	84950	0.52	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	X	X	X
83	8495	5.95	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	---	---	---	---
83	84951	0.31	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	---
83	84952	1.52	P	INTERMITTENT	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	84953	0.43	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
83	84954	0.86	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
83	8496	5.07	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	---	---	X	X
83	849605	0.19	P	LONG - TERM	D	L	2	ACTIVE	NO	HCV, 20yrs	DISCOURAGE	X	---	X	X
83	84961	1.18	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	X
83	849611	0.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	X
83	849615	0.46	P	SHORT-TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	X
83	84962	0.61	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
83	84963	0.78	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	8497	1.80	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
86	44003	0.73	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
86	6130	1.26	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT	---	X	X	X
86	8498	0.05	P	LONG - TERM	C	C	2	STORMPROOF	YES	HCV	DISCOURAGE	---	X	X	---
86	84984	0.15	P	LONG - TERM	D	L	1	STORMPROOF	YES	HCV	DISCOURAGE	---	X	X	---
87	44001	1.20	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV	PROHIBIT	---	---	X	X
87	44003	0.25	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
87	6130	3.47	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT	---	---	---	---
89	44001	1.25	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV	PROHIBIT	---	X	---	---
89	44002	2.77	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
89	44050	0.82	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
89	6122	5.31	P	LONG - TERM	C	L	2	ACTIVE	YES	HCV, 20yrs	PROHIBIT	---	---	X	---
89	61222	0.91	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
89	6130	3.65	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT	---	---	---	---
89	6133	1.36	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
89	8494	1.08	P	LONG - TERM	C	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	X	X	---
89	8496	0.20	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	X	X	X	X



# ALTERNATIVE 5

## ROAD MANAGEMENT OBJECTIVES

Table 3: Alternative 5

VCU	ROAD NUMBER	ROAD MILES	ROAD STATUS	SERVICE LIFE	SERVICE LEVEL	FUNCT. CLASS	POST-HARVEST MAINT. LEVEL	MAINTENANCE STRATEGY	ACCESS NEEDS/TRAFFIC STRATEGIES			POST-HARVEST CONCERNS (SEE ROAD CARDS)			
									FUTURE COMM. VOL.	SILVIC/ ADMIN.	PUBLIC/ RECREATION	HYDRO/ SOILS	W/L	SUB-SIS.	FISH
81	8460	4.06	P	SHORT - TERM	D	L	1	OBLITERATE	NO		ELIMINATE	X	X	X	---
81	84601	1.00	P	SHORT - TERM	D	L	1	OBLITERATE	NO		ELIMINATE	---	---	---	---
81	84602	0.46	P	SHORT - TERM	D	L	1	OBLITERATE	NO		ELIMINATE	---	X	---	---
81	8461	0.91	P	SHORT - TERM	D	L	1	OBLITERATE	NO		ELIMINATE	X	X	---	---
81	84612	0.85	P	SHORT - TERM	D	L	1	OBLITERATE	NO		ELIMINATE	---	---	X	---
82	8498	1.99	P	LONG - TERM	D	C	2	ACTIVE	YES	HCV, 20yrs	PROHIBIT	---	---	X	---
82	8498	1.78	P	LONG - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT	---	X	X	---
82	84981	0.89	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
82	84982	0.90	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	---	---
82	84984	1.99	P	LONG - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	8496	5.07	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	X	X	X	X
83	849605	0.19	P	LONG - TERM	D	L	2	ACTIVE	NO	HCV, 20yrs	DISCOURAGE	X	---	---	---
83	84961	1.18	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	X
83	84961	1.86	P	INTERMITTENT	D	C	2	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	X	X	X	X
83	849611	0.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
83	849615	0.46	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	X
86	44003	0.73	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
86	6130	1.26	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT	---	---	X	---
86	8498	0.05	P	LONG - TERM	C	C	2	STORMPROOF	YES	HCV	DISCOURAGE	---	X	X	---
86	84984	0.15	P	LONG - TERM	D	L	1	STORMPROOF	YES	HCV	DISCOURAGE	---	---	X	X
87	44001	1.20	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV	PROHIBIT	---	---	X	---
87	44003	0.25	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
87	6130	3.47	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT	---	X	X	---
89	44001	1.25	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV	PROHIBIT	---	---	X	---
89	44002	2.77	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
89	6130	3.65	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	PROHIBIT	---	X	X	---
89	6133	1.36	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
89	8496	0.20	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	DISCOURAGE	X	X	X	X



# ALTERNATIVE 6

## ROAD MANAGEMENT OBJECTIVES

Table 4: Alternative 6

VCU	ROAD NUMBER	ROAD MILES	ROAD STATUS	SERVICE LIFE	SERVICE LEVEL	FUNCT. CLASS	POST-HARVEST MAINT. LEVEL	MAINTENANCE STRATEGY	POST-HARVEST ACCESS NEEDS/TRAFFIC STRATEGIES			POST - HARVEST RESOURCE CONCERNS (SEE ROAD CARDS)			
									FUTURE COMML. VOL.	SILVIC/ ADMIN.	PUBLIC/ RECREATION	HYDRO/ SOILS	W/L	SUB- SIS.	FISH
83	84950	0.15	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	X	X	X
83	84950	3.52	P	LONG - TERM	C	C	2	STORMPROOF	YES	HCV, 20yrs	ACCEPT	---	---	---	---
83	84951	0.31	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	---
83	84952	1.52	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	84953	0.43	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
83	8496	5.07	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	---	---	X	X
83	849605	0.19	P	LONG - TERM	D	L	2	ACTIVE	NO	HCV, 20 YRS	DISCOURAGE	X	---	---	---
83	84961	1.93	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	X
83	84961	1.86	P	INTERMITTENT	D	C	2	STORMPROOF	YES	HCV, 20yrs	ACCEPT	X	X	X	X
83	849611	0.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	X
83	849615	0.46	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
83	84962	0.61	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
83	84963	0.78	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	8497	1.80	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
89	8496	0.06	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	---	---	X	X



# ALTERNATIVE 7

## ROAD MANAGEMENT OBJECTIVES

Table 5: Alternative 7

VCU	ROAD NUMBER	ROAD MILES	ROAD STATUS	SERVICE LIFE	SERVICE LEVEL	FUNCT. CLASS	POST-HARVEST MAINT. LEVEL	MAINTENANCE STRATEGY	POST-HARVEST ACCESS NEEDS/TRAFFIC STRATEGIES			POST - HARVEST RESOURCE CONCERNS (SEE ROAD CARDS)			
									FUTURE COMM. VOL.	SILVIC/ ADMIN.	PUBLIC/ RECREATION	HYDRO/ SOILS	W/L	SUB- SIS.	FISH
82	8495	5.74	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	X	X	X	---
82	8495	1.40	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	---
82	84956	2.32	P	INTERMITTENT	D	L	2	STORMPROOF	YES	HCV, 20yrs	ACCEPT	---	---	---	---
82	8498	1.78	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
82	8498	1.49	P	LONG - TERM	D	C	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	---	X	X	---
82	84982	0.90	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
82	84984	1.99	P	LONG - TERM	D	L	1	STORMPROOF	YES	ATV, 20yrs	PROHIBIT	X	X	---	---
82	8499	1.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	8495	5.94	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	---	---	---	---
83	84951	0.31	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	---
83	84952	1.52	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	84953	0.43	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
83	84954	0.86	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
83	8496	5.07	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	---	---	X	X
83	849605	0.19	P	LONG - TERM	D	L	2	ACTIVE	NO	HCV, 20yrs	ACCEPT	X	---	---	---
83	84961	1.93	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	X
83	84961	1.86	P	INTERMITTENT	D	C	2	STORMPROOF	YES	HCV, 20yrs	ACCEPT	X	X	X	X
83	849611	0.76	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	X	X	X
83	849615	0.46	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	X
83	84962	0.61	P	SHORT - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	X	---	---	---
83	84963	0.78	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	X	X
83	8497	1.18	P	INTERMITTENT	D	L	1	STORAGE	YES	ATV, 20yrs	PROHIBIT	---	---	---	---
86	44003	0.73	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	ELIMINATE	---	---	---	---
86	6130	1.26	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	ACCEPT	---	X	X	X
86	8498	0.05	P	LONG - TERM	C	C	2	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	---	X	X	---
86	84984	0.15	P	LONG - TERM	D	L	1	STORMPROOF	YES	HCV	DISCOURAGE	---	X	X	---
87	44001	1.20	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	---	---	X	X
87	44003	0.25	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	ELIMINATE	---	---	---	---
87	6130	3.47	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	ACCEPT	---	---	---	---
89	44001	1.25	P	LONG - TERM	D	L	2	STORMPROOF	YES	HCV, 20yrs	DISCOURAGE	---	X	---	---
89	44002	2.77	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	ELIMINATE	---	---	---	---
89	6122	3.18	P	LONG - TERM	C	L	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	---	---	X	---
89	6130	3.65	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV	ACCEPT	---	---	---	---
89	61222	0.91	P	LONG - TERM	D	L	1	STORAGE	YES	ATV, 20yrs	ELIMINATE	---	---	---	---
89	8494	1.08	P	LONG - TERM	C	L	1	STORAGE	YES	ATV, 20yrs	ELIMINATE	---	X	X	---
89	8496	0.20	P	LONG - TERM	C	C	2	ACTIVE	YES	HCV, 20yrs	ACCEPT	X	X	X	X



# **Appendix D**

## **DEIS Public Comments and Responses**



# THE HISTORY OF THE

REIGN OF

CHARLES THE FIRST



# DEIS Public Comments and Responses

On the following pages are the written comments received on the 1995 Draft EIS and Forest Service responses to letters with substantive comments.

Availability of the Draft EIS was announced in the *Federal Register* on February 2, 1996. The deadline for public comment was listed as March 26, 1996. Copies were mailed to everyone on the project mailing list. Notices of the availability of the Draft EIS and the schedule for public houses and subsistence hearings were placed in the *Petersburg Pilot* and the *Juneau Empire*. Additional notices to public areas in Kake, Wrangell, and Hobart Bay were issued.

Subsistence hearings on the Draft EIS were held in Hobart Bay, Petersburg, and Kake during the comment period. Open houses were held in conjunction with the subsistence hearings to describe the analysis process and answer public questions on the Draft EIS, and were additionally held in Juneau. Public comment on the Draft EIS was also accepted at that time. Comments were recorded and transcribed and follow the written comments in the next section.

Seventy-four individuals, organizations, and agencies submitted written comments on the Draft EIS. Letters with substantive comments have been coded and the comments within each letter numbered with the code to aid the reader to easily see the Forest Service response to individual comments. Following is a listing of letters with substantive comments, their corresponding codes, and what pages the letters begin.



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Mark Geil	11	17
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## Kake Tribal Logging & Timber Corp.

P.O. Box 350 • KAKE, AK • 785-3716 • FAX 785-4107

January 24, 1996


Pam Gunther, Project Leader  
Parametrix, Inc.  
5808 Lake Washington Boulevard, N. E. Suite 200  
Kirkland, Washington 98033

Dear Ms Gunther:

Thank you for the opportunity to review and comment on the Port Houghton/Cape Fanshaw Timber Sale Project, draft environmental impact statement. We are in support of the Forest Service's Preferred Alternative B.

Kake Tribal Logging and Timber Corporation has recently been certified as an 8(a) contractor with the Small Business Administration. Our primary SIC code is 1629 (heavy construction). We would be very appreciative of Forest Service consideration and continued cooperation with the SBA in allowing some of the road and facilities construction work to be designated for 8(a) enterprises.

Yours truly,

  
P. I. JOENSUU  
President

cc Gail Kimbell  
Gary Morrison

### Responses to Kake Tribal Logging & Timber Corp.

- 1.1 Comment noted. Public comments on the 1995 Draft EIS were taken into consideration in developing the range of alternatives in the Revised DEIS.
- 1.2 Comment noted.

1.1

1.2





**COLUMBIA HELICOPTERS, INC.**

January 25, 1996

Pam Gunther, Project Leader  
Parametrix, Inc.  
5808 Lake Washington Blvd. NE, Suite 200  
Kirkland, WA 98033  
  
Re: Port Houghton / Cape Fanshaw Timber Sale Project

Dear Pam:

We support Alternative D with some possible modification. We think you have a good idea here with using the helicopter system to disperse the units and lessen the impacts on the resources. Also, we like the idea of partial cutting. This was done very successfully in the Bradfield Canal in 1995 on the Campbell Timber Sale (owned by KPC and harvested by CHI). These units were harvested without an LTF or any roads. They were laid out on benches and partial cut, thus making the visual impact very low from the water view. We thought perhaps some of these were cut too heavily also.

This timber was flown to a bag boom on the water, processed and bundled on a barge and then towed to the manufacturing facilities. It could also be landed on a barge and thus eliminate the water drop if that is a problem.

Perhaps you could cut down a bit on the roading and clear cutting and try a bit more of the methods mentioned above. The helicopter, although expensive, can log a forest and still have a forest!

Best Regards,

COLUMBIA HELICOPTERS, INC.

Max Merlich  
Vice President of Logging Operations  
MM:hid

cc: CHI Ketchikan

MAILING ADDRESS: P.O. Box 3500 Portland, Oregon 97208 LOCATION: Aurora Airport Aurora, Oregon  
TELEPHONE: 503/855-XXXX FAX: (503) 878-5841

Responses to Columbia Helicopters, Inc.

2.1

In the Revised DEIS, Alternative 4 has the most helicopter logging proposed (2,206 acres) followed by Alternative 2 (1,338 acres). Partial harvest would be greatest under Alternative 4 (44 percent of total acres cut). All action alternatives (except Alternative 3) would have roads and at least one LTF. Alternative 3 would use the existing LTF in Hobart Bay and existing Goldbelt, Inc. roads. To minimize visual impacts for the proposed timber sale, the interdisciplinary team also attempted to make full use of partial cuts (through feathering, green tree retention, and group selection), minimize road mileage, and place units in unseen areas.

2.2

The proposed timber sale is considering several log transport methods to minimize bark loss and deposition in water. However, the logging contractor has the transporting options for any timber sale. Although bark loss into the water can be minimized through the direct transfer of logs onto a barge, other impacts using this transfer method include potential dredging to create an underwater area deep enough for a barge to load near land and increased visual impacts from the presence of a large barge. The requirement of large barges may preclude small logging operators from harvesting the timber.

Port Houghton/Cape Fanshaw EIS

D-5

DEIS Public Comments

2.1

2.2



## Silver Bay Logging, Inc.

Cube Cove #2  
Juneau, Alaska 99850-0360  
(907) 586-4133 (907) 586-5686  
(907) 799-2211 FAX 799-2212

January 30, 1996

Pam Gunther, Project Leader  
Parametrix, Inc.  
5808 Lake Washington Blvd. NE, Suite 200  
Kirkland, WA 98033

Dear Ms. Gunther,

Please send us a copy of the complete volumes of the Port Houghton EIS as we only received the summary.

Also, please accept the following comments pertaining to the document

Subsistence in this area is virtually non-existent as most people in this area know even if they refuse to admit it. The timber harvest would have no effect whatsoever on subsistence. Two of the closest communities to the project have village corporations in the area (Gold Belt/Juneau and Kake) and both have clear-cut their lands at will. Therefore the objections from the subsistence leaders in these communities should carry no weight. Before there was any timber harvest at Hobart Bay it was rare to ever see any deer and since the logging has been going on for fifteen years I have heard they are becoming common.

The timber considered in this draft (in alts. B, C, D, and E) is absolutely essential to the subsistence of thousands of people in Southeast Alaska for their livelihoods. Therefore we would like to see the most timber harvested as is possible since harvest at this point in time should preclude all other uses. In light of the fact that several million acres of wilderness are directly adjacent to the project area, that point is even more salient.

Furthermore, this timber should be included in the independent timber sale program as it is in an area traditionally out of bounds of the KPC contract area. Both for the success of the independents and KPC we feel that the KPC contract should be implemented in the Kachikan Area of the Tongass National Forest.

We know that there will be many objections to this timber being the subject of harvest from all the usual suspects but it should be remembered that the timber sales in the Tongass have all but ceased in the past three years and some relief is essential. One hundred and twenty-three million board feet of timber is a small amount of what this area is capable of producing.

Thank you for the opportunity to comment.

Sincerely,

  
Brian S. Brown, Forest Engineer  
Silver Bay Logging

## Responses to Silver Bay Logging, Inc.

- 3.1 Subsistence use of the project area was obtained from public scoping for this project, information received from the ADF&G, and TRUCS data.
- 3.2 Comment noted. In the Revised DEIS, Alternative 4 proposes the most timber harvest in the project area (145 MMBF).
- 3.3 There has been no final decision on the size or number of sales for this area or whether they would be offered as SBA set-aside sales. The KPC pulp mill shut down in 1997 so there will be no offerings to KPC under the long-term contract. Any decision on who may harvest timber from the project is an administrative decision beyond the scope of this analysis.



# GLACIER Guides, Inc.

JIMMIE C. ROSENBRUCH, ALASKA MASTER GUIDE & OUTFITTER  
P.O. BOX 66, GLACIER BAY, ALASKA 99828 PHONE 907-497-2252  
P.O. BOX 480, SANTA CLARA, UTAH 84705 PHONE 801-628-0973

February 7, 1996

Pam Gunther, Project Leader  
Parametrix, Inc.  
5808 Lake Washington Blvd. N. E., Suite 200  
Kirkland, Washington 98033

Re: Port Houghton/Cape Fanshaw Timber Sale

Dear Ms. Gunther

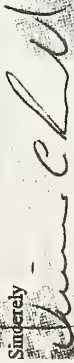
4.1 Alternative D or another modified alternative that does not require a LTF to the east of Sandborne Canal would be highly preferred.

4.2 I would highly suggest the only LTF and camp for this entire project be located in the north arm of Farragut Bay and none in Port Houghton.

This would significantly reduce the adverse impacts in the pristine Port Houghton area.

Your comments would be appreciated.

Sincerely



Jimmie C. Rosenbruch

mar

## Responses to Glacier Guides, Inc.

4.1

None of the alternatives in the Revised DEIS propose any timber sale activities, including LTFs, in the area east of Sandborn Canal.

4.2

Farragut Bay South Arm has a Land Use Designation (LUD) of II. These lands are to be managed in a roadless state to retain their wildland character. As a result, no LTFs can be sited. The North Arm of Farragut Bay is shallow with a navigational hazard at the forefront of the bay. The bay has insufficient flushing for an LTF siting. Road development into the bay would result in constructing roads on unstable soils using difficult and costly construction methods.

● HUNTING ● FISHING ● CHARTERS ● PHOTOGRAPHY  
51-FOOT YACHT M/V "CHA/K"

Port Houghton/Cape Fanshaw EIS

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DEIS Public Comments



# Wilderness Swift Charters

P.O. Box 022026, Juneau, Alaska 99802  
Phone: (907) 463-4942, Fax: (907) 463-4925

Pam Gunther  
Paramatrix, Inc.  
5808 Lake Washington BLVD. N.E. Suite 200  
Kirkland, WA 98033

2-12-96

Re: Comments on DEIS Port Houghton Timber Sale

Wilderness Swift Charters operates wilderness camping, boating, wildlife watching, natural history education, kayak adventure and photography trips in Northern Southeast Alaska. Our usage of the Port Houghton/Cape Fanshaw area has grown exponentially over the last few years. The Port Houghton/Cape Fanshaw area is the centerpiece of our growth plans. We have contracted, debt financed, and begun construction of another vessel to allow us to expand fully into the Cape Fanshaw/Port Houghton area.

ALL of the proposed alternatives pose a dire threat to the stability of our business. Somehow the proposed cut grew from 24 million board feet to an outrageous 173 million ft<sup>3</sup>. The unacceptable scale of the proposed cut, and the attendant 95 miles of road, and log transfer facilities in the two best anchorage/campsites outside of Sanborn Canal would render the entire area unusable for wilderness trips. We are a successful business because we offer a WILDERNESS experience. Nothing in any of the alternatives addresses preserving the marketable wilderness values that constitute the product by which I and my associates make our living.

Any of the following aspects of the proposed sale will have a serious impact on the financial viability of my company:

1) Visual Impact. A tremendous portion of my income is derived from professional photographers and filmmakers. A background of clearcuts will make it impossible to film the humpback whales and marine mammals in the Frederick Sound area from as far offshore as 15 miles. The clearcuts in Hobart Bay and around Kake already have reduced the area viable for film and photography to less than half of the marine mammals' normal summer areas. (I brought this up in the first round of comments. It was ignored in the DEIS.) Cutting Cape Fanshaw will leave only the Admiralty Island shore for background. This would make it very difficult for me to maintain this portion of my market, and damage years of careful cultivation of this service.

WILDERNESS SWIFT CHARTERS holds USFS Special Use Permits for this area. Our vessel assisted camping and hiking trips use several sites as campsites. Our market constitutes people from around the world who have come to Alaska for a WILDERNESS experience. Looking at 95 miles of road, huge clearcuts, and LTF's will completely

5.1

5.2

5.3



Recycled Paper  
Wilderness Swift Cares

## Responses to Wilderness Swift Charters

5.1

The purpose of this EIS document is to formulate a plan for a large area (137,000 acres) to guide the harvest of timber for several years and properly evaluate the cumulative effects of all management actions in this area. A large area was selected because it is more cost-efficient to do so. From the data available on this area, the Forest Service estimated that the timber volume that could be included in the project area for this NEPA analysis would be in the 110-125 MMBF range or approximately 10 percent of the tentatively suitable timber volume. This is considerably lower than the projected level of timber harvest under the 1979 TLMP which considered three entries over the rotation. This would have necessitated 25 to 30 percent of the tentatively suitable timber being harvested in the entry. Considering emerging Forest issues regarding new resource protection measures, the funding that was available to do a site-specific analysis, and the need to maintain a timber supply; the purpose and need was set at 110-125 MMBF. Harvesting 110-125 MMBF is still a viable alternative for the project area under the new Forest Plan.

The first attempt at a timber sale in this vicinity during the mid-80s was for 47 MMBF from a project area of 47,000 acres. The current project area is 136,906 acres. The 47 MMBF also represented about 10 percent of the tentatively suitable timber volume from within the 47,000 acre project area for the earlier sale. The current NEPA effort would result in several sales spread out over a number of years. The number and type of sales, e.g. SBA, would be determined by the management direction and needs after the NEPA decision is made.

5.2

Humpback whales occur throughout Frederick Sound and Stephens Passage. The closest photographic opportunities of humpback whales without logged areas as background from the project area would be Faragut Bay, and bays and shoreline areas north of Hobart Bay.

5.3

The project area is not a designated wilderness area and has been identified for intensive resource use and development since 1979. Wilderness Swift Charters is responsible for any business decisions it made knowing this. The designated wilderness areas near the project area are the Tracey Arm-Fords Terror Wilderness, Admiralty Island National Monument, Kootznوو Wilderness, and Stikine-Leconte Wilderness.

Port Houghton/Cape Fanshaw EIS

D-8

DEIS Public Comments



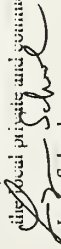
destroy any pretense that we are in a wilderness area. We would lose this entire region from our area of operations. How are we supposed to make up for the lost revenue?

2) Wildlife impacts. Sanborn Canal and the Salt Chuck area are the best black bear viewing area in southernst. (ANAN Creek is so over run with visitors that it cannot qualify as a wilderness area.) We already have 50-60 Use Days booked for the 06 season from people wanting to photograph black bears...and it is very early in the booking season. The demand can easily be over 200 Use Days in 96. And exponentially more in the next few years. Several hunting guides depend on this area for black bear harvest. Study after study has shown that when the logging roads go in, the bear population in an area drops.

The Cape Fanshaw/Fort Houghton area is the only area we operate in that has a moose population large enough to offer our clients a chance to view moose. In addition, the opportunity to hear, and sometimes even see, the Alexander Archipelago wolf is greater here than anywhere else we operate. The scale of cut proposed would undoubtedly impact both of these species.

3) Noise. All of the alternatives listed would generate too much noise, even during the initial phases. On a still evening, the sound of heavy equipment would be heard all along the water. Sound can travel unimpeded across calm water, and it would be impossible to pretend we were in a wilderness camp even before the visual impacts became unacceptable.

In short, every alternative proposed will seriously reduce the area available for us to operate our business. We have recently taken on a large debt to expand this business, and the loss of this area for our use could seriously threaten our livelihoods. It might be possible to continue if the cut is held to the original 24 million board feet, and no LTF is established in an anchorage/campsite. At the very least, any harvest or roading east of Sanborn Canal has to be eliminated. None of the proposed alternatives even gives a nod to true multiple use. The proposal will in fact give tremendous priority to the demands of KFC, a business that is based hundreds of miles away, while doing extreme damage to the local private and commercial users.

  
Lynn Scholter  
Owner

cc: Gary Morrison  
A. Kimball

5.4 Logging the project area would result in a reduction of black bear carrying capacity of 0 to 7 percent dependent on project location and action alternative. Annual harvest of black bears in the project area has averaged 5 to 6 bears per year since 1988. Refer to Section 4.3.1 in the Revised DEIS. Loss of up to 10 percent of the black bear population should not impact hunter success (compared to bear carrying capacity of 278 bear) in the project area assuming existing trends continue. However, the presence of logging could induce other recreational hunters (that previously did not use the area) to commence hunting in the area. In addition, the presence of logging roads may deter guided hunters that presently use the area if there is preference for undisturbed forests. Alternatives 2, 4, 5, and 6 include road closures that are intended to offset any tendency towards an increase in hunting mortality from hunters using vehicles. Logging residents could compete with guided hunters during the time period that harvesting is occurring. There are several areas near the project area where black bears are more numerous and easy to view, e.g., Kuiu and Kupreanof Islands.

5.5 The preferred habitat type for moose (cottonwood and willow) is lacking in the project area. As a result, fewer moose occur in comparison to other areas within the Tongass National Forest where cottonwood and willow are abundant. These latter areas would be better opportunities to view moose. However, moose generally benefit from timber harvest and would forage on deciduous forage in clearcuts. As a result, timber harvest could result in more moose being present in the project area. The project area does allow very good opportunities to, at least, hear wolves at night if camping on land. Timber harvest is not expected to significantly impact wolves that exist within the project area. Protection of the wolf in the project area will follow all applicable standards and guidelines as described in the Forest Plan (1997). Wolves are also protected through the establishment of Old-Growth Habitat LUDs as described in the Forest Plan.

5.6 Noise impacts have been added to Sections 4.3.1.6 and 4.7.1.4 of the FEIS.



2/13/96

6.1

ADF&G has provided more recent information on commercial fisheries which has been used to update discussions of commercial fisheries. Refer to Section 3.2.3 in the Revised DEIS.

Pam Gunther

Project Leader:

I'd like to comment on the draft EIS on Port Houghton. I attended and testified at the Petoskey meeting organized by Parametrix Inc. At that time I spoke to the economic impact that logging Port Houghton could have on me personally. I pursue science in S.E. Alaska and spend a good percentage of my time in Port Houghton and surrounding areas. On a given season P. H. has contributed as much as  $\frac{2}{3}$  of my earnings for the entire season. You have chosen 1988 to show the value of salmon harvested. According to the footnote this was the latest data available yet on the following page you give fish statistics for 1993. The total catch you show for 88 is around 8000 fish. On at least two ~~seasons~~ seasons since then I've caught over 100,000 salmon in Port Houghton and seen as many as 30 boats fishing in the Bay on a given day. ADF+G figures show catches of over 1,000,000 salmon

6.1



inside the Bay and can only guess what Port Houghtons real contribution to the total catch was for any given year. Anyway your choice of 1988 misrepresents Port Houghtons contribution to the local economy.

6.2

I feel I could be negatively impacted if this sale goes ahead as planned and am upset by what I consider total disregard to my livelihood as well as the other hundreds of fishermen who contribute to their livelihoods by fishing Port Houghton

6.3

Because of these and many other reasons I can only support the first option "No Cut".

Sincerely

Jim Green

P.O. Box 1151

Psg. AK 99833

907-772-3623

#### Responses to Jim Green

6.2

The EIS has included fisheries concerns into units and roads, as well as action alternatives through avoiding or minimizing disturbance to highly productive streams, avoiding harvest near the shoreline, minimizing road miles, ensuring adequate stream buffers, and applying BMPs. Unit specific fisheries mitigation measures are listed in the unit summary cards in Appendix A. Monitoring measures are described in Appendix E, while mitigation measures are described in Appendix L. No changes in commercial fishing success is expected from implementation of an action alternative.

6.3

Comment noted.





## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Migratory Bird Management-Raptors  
3000 Village Blvd., Suite 240  
Juneau, Alaska 99801-7100

IN REPLY REFER TO:

2/21/96

Pam Gunther, Project Leader  
Parametrix, Inc.  
5808 Lake Washington Blvd. N.E., Suite 200  
Kirkland, Washington 98033

Dear Ms. Gunther:

We have reviewed the Draft Environmental Impact Statement for the Port Houghton/Cape Fanshaw Timber Sale Project as it pertains to bald eagles.

Other than LTF sites and associated roads, most activities related to this project would not take place in the beach fringe and thus would not impact bald eagle nesting, feeding and perching areas.

Recent USFWS surveys have revealed additional bald eagle nests at Port Houghton and Cape Fanshaw. A total of 186 bald eagle nests have now been documented since the first survey of the area in 1979 (map copy enclosed). Within the project boundary, State Selected lands include 42 of the nest sites, and Goldbelt Inc. lands contain 29 nest sites. Typically, 40% to 50% of nests are in active use by eagles each year in Southeast Alaska.

No eagle nests have been found in the immediate vicinity of the proposed Rabbit Creek LTF at Port Houghton. However, a nest (#43) is located within 330 feet of the proposed site of the Little Lagoon LTF. Another bald eagle nest (#53) is located within 330 feet of the proposed LTF at North Point.

It will be important to follow the conditions of the bald eagle Interagency Agreement between the USFWS and the Forest Service: to maintain 330 foot buffer zones around nest trees; to place timing restrictions on blasting within 0.5 mile of nests; and to avoid repeated helicopter flights within 1/4 mile of active eagle nests.

Another condition of the Agreement, sometimes overlooked, is that the undisturbed 330 ft. radius buffer zone is to be maintained at each bald eagle nest tree even though the nest becomes inactive or is lost for any reason. About 20% of the documented bald

### Responses to USFWS

- | Note |   |
|------|---|
| 7.1  | Enclosures with this letter are maps of bald eagle nests in the project area which are included in the planning record.<br><br>Bald eagle nest site revisions have been incorporated into the Revised DEIS.   |
| 7.2  | Refer to response to comment 7.1.   |
| 7.3  | To place an LTF at Little Lagoon, the Forest Service requested a variance from the USFWS because the proposed LTF is within 330 ft. of a bald eagle nest site. This variance has been obtained from the USFWS. Timing restrictions on blasting within 0.5 mile of nests would be followed, and helicopter flights within 0.25 mile of documented bald eagle nests would be avoided. |
| 7.4  | The Forest Service recognizes that the bald eagle Memorandum of Understanding between the Forest Service and the USFWS includes bald eagle nest trees even if a nest becomes inactive or is lost for any reason. Also see revisions in Section 3.3.1.7 of the Revised DEIS.   |



eagle nests in the Port Houghton/Cape Fanshaw area are gone now,  
mostly due to natural loss.

Thank you for the opportunity to comment on the Draft document.  
Please contact me or Philip Schempf if you have any questions.

Sincerely,



Mike Jacobson  
Eagle Management Specialist





# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Migmore Bird Management Report  
3000 Vinegar Blvd., Suite 240  
Juneau, Alaska 99801-7100

March 1, 1996

Mike Weber  
Tongass National Forest  
Chatham Area  
204 Siginaka Way  
Sitka, Alaska 99835

Dear Mike:

Here is some recent information on bald eagle nests located near proposed LTF sites at Port Houghton.

Nest #43 was first observed by aerial survey several years ago. We resurveyed the area by boat last summer, and the nest is actually located further NW than previous maps show. Looks like the proposed Little Lagoon LTF site is nearly at the same location as nest #43. Perhaps a new LTF site could be explored.

Nest #43: Hamlock, deformed top, 2ft. dbh.  
The nest was inactive 1995, no eagles observed nearby.  
Nest tree is 50-75 feet tall.  
Nest is 50-75 feet above ground.  
Nest tree is 10-25 yards from the waterfront.  
Serial number G494 on the nest tree sign.

The proposed site for the North Point LTF is located near nest #53.

Nest #53: Spruce, broken top - live, 4ft. dbh.  
The nest was inactive in '95, no eagles observed.  
Nest tree is 50-75 feet tall.  
Nest is 50-75 feet above ground.  
0-10 yards to the waterfront.  
Serial number G510 on the nest tree sign.

Perhaps the North Point LTF site could be located further SE. I am enclosing map copies too. Let us know if you have questions.

Sincerely,  
*Mike Jacobson*  
Mike Jacobson  
Eagle Management Specialist

## Responses to USFWS

Note Enclosures with this letter are maps of bald eagle nests in the vicinity of the LTF sites which are included in the planning record.

8.1 Refer to response to comment 7.1.



9.1 Comment noted.

MARCH 3, 1996

PAMELA GUNTHER  
PARAMETRIX INC.  
5808 LAKE WASHINGTON BLVD. N.E.  
SUITE 200  
KIRKLAND, WA 98033

TO WHOM IT MAY CONCERN:

I FEEL THAT PORT HOUGHTON/CAPE FANSHAW TIMBER SALE PROJECT WON'T AFFECT ANY SUBSISTENCE FOR ME. I HAVE BEEN A RESIDENT OF HOBART BAY FOR SIX YEARS. I HAVE HUNTED AND FISHED IN THE AREA OF THE TIMBER SALE. THE LOGGING THAT WOULD TAKE PLACE HAS BEEN GIVEN A LOT OF CONSIDERATION, CONCERNING THE FISH HABITAT, LOCATION OF CLEAR CUTS AND WILDLIFE IN THE AREA. LOGGING HAS BEEN KEPT FROM MAJOR FISH STREAMS AND NOT EVEN VISIBLE FROM THE PORT HOUGHTON BAY. THE WILDLIFE IN THE AREA WOULD FLOURISH FROM LOGGING BY CREATING A BETTER HABITAT FOR THEM. THIS PROJECT WOULD CREATE MORE JOBS AND TAX DOLLARS WHICH WOULD IN TURN HELP THIS INDUSTRY LOCALLY. IT WOULD ALSO BE OPENING SOME NEW AREAS FOR RECREATION, HUNTING, FISHING AND HIKING THAT ARE NOT BEING USED AT ALL NOW.

9.1

MICHAEL GRAVES  
P.O. BOX HBH, HOBART BAY  
JUNEAU, AK. 99833





Responses to Robert E. Howe

- 10.1 The TTRA fish habitat protection requirements, and the more restrictive Forest Plan standards and guidelines, are integrated into all of the proposed alternatives and unit and road design.
- 10.2 The Record of Decision for the new Tongass Land and Resource Management Plan was signed in May 1997. All applicable Forest Plan standards and guidelines that are associated with the Port Houghton/Cape Fanshaw project will be applied.
- None of the alternatives in the Revised DEIS propose timber harvest in close proximity to Sandborn Canal.
- Because of the need for some sales to be large or larger than what could be financed by a small operator, it would be impractical to have a goal to have only small operators for every sale in this area. It would also be anti-competitive to state that only small, locally-owned operators could bid on any sale offered.
- The size or volume of each sale should be in direct proportion to the amount of development required. It would be impractical to offer sales with a small volume but requiring high development costs. Because the first sale would need to bear the cost of both camp and LTF development, the volume offered in the first sale at the Little Lagoon LTF should be of an appropriate size to amortize these costs unless it was decided for the government (a.k.a. the American taxpayer) to pay for these developments. Since government funding is unlikely, the first sale using the Little Lagoon LTF should probably be between 25-50 MMBF. Any helicopter sale(s) would normally require a minimum of 3-5 MMBF to justify the sale and the associated move-in costs. Market conditions vary, and the exact volumes and sale configurations would be determined at the time of sale preparation.
- 10.3 The new Forest Plan includes many safeguards for protecting fish habitat. None of the alternatives considered are expected to have an adverse effect on commercial fisheries.

D-16

Port Houghton/Cape Fanshaw EIS

DEIS Public Comments

March 3, 1996

Abrigault Kimbell  
Forest Supervisor, Sitka Area  
P.O. Box 309  
Petersburg, AK 99833

Dear Ms. Kimbell:

You must be one "tough gal" to be supporting the Port Houghton/Cape Fanshaw timber sale while abiding in the fishing community of Petersburg! Or maybe that's not as tough as going against the Forest Service establishment.

I am a 30 year resident of Alaska, mostly at Gustavus, and have seen the destruction of a number of fish producing streams by the USFS policy. To have that happen to the headwaters of the productive Sandborn Canal is almost unbelievable, except that I've observed happening elsewhere over these many years. The Forest Service has never adequately protected fish and wildlife habitat. Some of us were encouraged by passage of the Tongass Timber Reform Act which has become ineffective because of selfish political pressure from Senator Stevens and Murkowski, and even more "wildly" from Representative Young.

I don't suppose you have the authority, even if I strongly believe you should have, to hold off on this Timber Sale the TLMP has been revised, and I ask that you do that. Stop any logging plans for the Sandborn Canal Watershed. Give the "little guys" a chance, and offer some small sales outside such critical watershed.

I haven't thrown the usual facts and figures at you, as I'm sure that one in your position has heard and I hope thought about the long term effects of many political decisions being made by your agency. There are so many good reasons to giving more thought and action to our environment. I will admit that maybe some of my concern could be construed as selfish. Both of my sons are trappers in S.E. Alaska. They generally agree with good fisheries management and see the use for it based on scientific knowledge. They put up with and support most such management. Can't You guys pay attention to the many scientific studies that have resulted in criticism of your management? You're not always wrong, and neither are us "concerned locals". Please listen, we'll be living here after many of you have transferred to "younger trees".

Sincerely,



Robert E. Howe  
Box 67  
Gustavus, Alaska 99826

Received

MAR 8 1996

Tongass N.F.



## Stay Involved

Your interest in the Port Houghton/Cape Fanshaw project is helpful and appreciated. We hope that you will take the time to review this information and stay involved in the planning process. If you have questions or wish additional information about certain aspects of the project, please direct written comments to:

Pamela Gunther  
Parametrix Inc.  
5808 Lake Washington Blvd. N.E.  
Suite 200  
Kirkland, WA 98033



If you would like to speak to Forest Service staff about the project, you may direct comments to three local offices.

These are:

Juneau Ranger District - Roger Birk at (907) 586-8800  
Petersburg Ranger District Office - Tom Parker at (907) 772-3841  
Chatham Supervisor's Office - Mike Weber at (907) 747-6671

Further information regarding the Port Houghton/Cape Fanshaw EIS will be mailed to you if you complete and return the attached pre-addressed card on the bottom of this page. Please indicate if you wish to receive the summary, the EIS only, or the EIS with all appendices. To receive a copy of the unit and road cards, the EIS with all appendices must be ordered.

## Continue to be Involved

The Forest Service appreciates your continued interest and participation in the Port Houghton/Cape Fanshaw project and hopes that you will stay active in the planning process. Please indicate what portion of the EIS you would like to receive.

We will assume that persons who do not respond wish to have their names removed from the mailing list for the project.

Name Mark Geil Date 3-4-96

Do you wish to receive future mailings about this project? ☐ Yes ☒ No

If not, please provide it below:

Address FLEAT CAMP  
City, State, Zip Code HEBART Bay, AK 99850

Do you wish to receive future mailings about this project? ☒ Yes ☐ No

☒ Summary Only

☐ Volume I Main Portion of EIS (with some appendices)

☐ Volumes I and II Complete EIS (all appendices including unit and road cards)

Comments By studying the Port Houghton Timber Sale project Environmental Impact Summary, I believe the Timber harvest and Road system will not harm the wildlife or fish of this area. And the new growth of forest will more than sustain any wildlife in this area.  
Filed 7/2/96



Responses to Marina Lindsey

12.1

Refer to comment 10.2. Fishing, tourism, recreation, and subsistence have been identified as issues of concern in this EIS. Detailed information on existing conditions and the effects of the harvest on these resources are provided in Chapters 3 and 4 of this EIS. Alternatives and units have been developed to address these resources. Please note that action alternatives include partial harvest units as shown in Table 2-4, and there is no plan to clearcut 125 MMBF for this project.

March 4, 1996

Marina Lindsey  
2895 Mendenhall Loop Rd. #76  
Juneau, AK 99801

12.2

None of the alternatives in the Revised DEIS propose timber harvest in close proximity to Sandborn Canal or in the area east of Sandborn Canal, including the Salt Chuck. Also refer to responses to comments 3.3 and 10.2.

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd. NE., Ste. 200  
Kirkland, WA 98033

Dear Ms. Gunther,

I am writing to ask you to oppose the Forest Service's plans to clearcut approximately 125 million board feet of timber in the Port Houghton/ Cape Fanshaw area of Southeast Alaska. The Tongass Land Management Plan (TLMP) is in the process of being revised and should be completed before this timber sale is finalized. There are several other industries including fishing, tourism, recreation and subsistence users which will be adversely affected by logging of the area.


12.1

Please do your best to stop logging units in the Sanborn Canal watershed and all lands to the east including the Salt Chuck. Please urge for the protection of the Upper Port Houghton area. Offer smaller, independent timber sales to local operators and not just large timber sales to Ketchikan Pulp. Address the concerns raised in reports to Congress (AFHA and Peer Review) and most importantly, work to protect the long-term health of fish and wildlife in the Port Houghton/ Cape Fanshaw area.

12.2

I appreciate your time and efforts to conserve the natural resources we have left. We must use them wisely or we will end up with a few wealthy companies, a clearcut forest, threatened wildlife and fish populations, and another region of the U.S. without sustainable industries with which to turn. We must develop and support other industries now. This isn't just a tree or wildlife issue. It's about economics and the viability of people in the future.

Sincerely,

  
Marina Lindsey

cc. Phil Jamik, Regional Forester

Port Houghton/Cape Fanshaw EIS

D-18

DEIS Public Comments



Comment noted.

13.1

The Multiple Use Sustained Yield Act of 1960 (MUSY), though it has been amended by NFMA, is still applicable and used as a basis for every planning effort. The underlying principal for this act goes back to 1908 when the basic philosophy for the management of the national forests was written: "... the greatest good for the greatest number over the long run." The Tongass National Forest, as a whole, is managed for multiple uses. Not every area, watershed, or travel route can accommodate multiple uses at all times. Under the Forest Plan, approximately 77 percent of the Tongass National Forest is in natural setting areas where timber harvesting is not allowed. Thus, 14 million acres of the Tongass National Forest is available to provide scenery, recreation, fisheries, wildlife, and subsistence opportunities without any timber development. Under the 1997 Forest Plan, about 92 percent of all commercial grade old growth will remain in 10 years, with only about 7 percent having been harvested previously and only one percent planned for harvest in the next 10 years. If implemented for 100 years, the 1997 Forest Plan would leave 84 percent of the commercial grade old-growth forest intact.

13.2

Refer to response to comment 10.2.

13.3

Several of the alternatives analyzed in the Revised DEIS propose to harvest less volume than the alternatives analyzed in the 1995 Draft EIS. No alternative in the Revised DEIS proposes timber harvest in the vicinity of Sandborn Canal or in the area east to, and including, the Salt Chuck and upper Port Houghton area.

13.4

# Speed Message

Rec'd 3/7/96

To	Abigail Kimbell	From	Jay A. Carolyn Pritchett
	Forest Supervisor		P.O. Box 1001
	P.O. Box 309		Petersburg, Alaska 99833
	Petersburg, Alaska 99833		
Subject	STRONG OBJECTION TO PORT HOUGHTON/CAPE FANSHAW TIMBER SALE PROPOSAL		
	Date	March 5	19 96

Dear Ms Kimbell:

We would like to go on record as strongly opposing the Port Houghton/Cape Fanshaw timber sale as it is currently proposed.

1. We feel the forest should be managed for multiple use and the 125 MMBF target makes that a mockery. There is no way that the sale can be enacted without extreme negative impact upon other uses such as recreation, tourism, and commercial fishing.
2. It does seem the better part of logic to postpone a sale of this magnitude until after the Tongass Land Management Plan has been revised. To try & squeeze it in now does give the appearance of trying to pacify Ketchikan Pulp before reform measures can be enacted.
3. If anything at all is going to be done in the area, it should certainly be on a much smaller scale and delete areas around the Sandborn Canal watershed east to and including the Salt Chuck & the upper Port Houghton area.

We have been reassured time and time again that the Forest Service is indeed changing and that timber is no longer the sole priority. This surely is a chance to put that philosophy into practice.

Signed Carolyn Pritchett 88

WILSON JONES  
1000 10th Avenue S.E.  
GAINESVILLE, FL 32609

13.1

13.2

13.3

13.4



14.1 Refer to response to comments 10.2, 13.2., 5.1, 3.3 and 12.2.

14.1

RECEIVED

MAR 08 1996

Forest Service  
Juneau, Alaska  
Timber

March 5, 1996

Dear Mr. Janik,

I am writing to let you know I am concerned about the future of Port Houghton. I think it would be best if the Forest Service held off on this sale until after the Tongass Land Management Plan has been revised. I think that there must be adequate protection for multiple use of this area, for commercial fishing, tourism, recreation and other uses. The 125,000 BF timber target should be eliminated. Quick timber sales to Ketchikan Pulp should not be done, but rather the offering of smaller, independent timber sales to local operators in the area west of Sanborn Canal. Logging should be deleted in the Sanborn Canal watershed and all lands to the east including the Salt Chuck. Protection should be given to the Upper Port Houghton area. Please address the concerns raised in the reports to Congress and adequately protect the long-term health and viability of fish and wildlife in the area. Thank you

Sincerely,

*Judy Cavanaugh*

Judy Cavanaugh  
510 3rd Street  
Juneau, AK 99801

cc: Phil Janik



3-6-96

To: Pamela Gunther  
Parametrix, Inc.

Re: Port Houghton/Cape Fanshaw Project Area

In my opinion, subsistence fishing and hunting should benefit if this area is logged. It will open up more ground to provide feed for deer, and will provide better access for hunting and fishing for residents.

The ground heals quickly after logging in Alaska, with natural seeding and fast growth of seedlings making a healthy forest. At present, a large percentage of the "old growth" trees in Alaska are dead or dying. And, nothing lives forever.

Carlana Holmes

Carlana Holmes  
P.O. Box Hobart Bay  
Juneau, AK 99850

Responses to Carlana Holmes

15.1  
Comment noted.

15.2  
Comment noted.



16.1

Comment noted.

### Continue to be Involved

The Forest Service appreciates your continued interest and participation in the Port Houghton/Cape Fanshaw project and hopes that you will stay active in the planning process. Please indicate what portion of the EIS you would like to receive.

We will assume that persons who do not respond wish to have their names removed from the mailing list for the project.

Name JIM HOLMES Date 3-2-96

Do we have your correct address? ☐ Yes ☒ No

If not, please provide it below:

Address P.O. H.B.H. HUBBART BAY

City, State, Zip Code TENNIS AK 99850

Do you wish to receive future mailings about this project? ☒ Yes ☐ No

☐ Summary Only

☐ Volume I Main Portion of EIS (with some appendices)

☒ Volumes I and II Complete EIS (all appendices including unit and road cards)

Comments I am in favor of Port Houghton/Cape Fanshaw project as far as the impact on subsistence fishing and hunting. The proposed off ground will provide habitat for deer and other game. The roads will make access to the area easier for people here in Hubbart Bay as well for others from different areas. The BWC will not only boost the economy but will provide for much needed recreation.

16.1



Responses to D.L. Howe

- 17.1 Comment noted. The KPC long-term contract was renegotiated in 1997 and no long-term timber sale offerings to KPC will be made from the Chatham or Stikine areas of the Tongass National Forest. A three-year supply of timber for the KPC sawmills, to come from the Ketchikan Area, was negotiated. The KPC pulp mill closed in 1997.
- 17.2 Refer to comment 13.2.
- 17.3 Comment noted.
- 17.4 Comment noted.
- 17.5 Clearcutting is only one method being used to manage timber on the Tongass National Forest, and it is being used less as more is learned about other methods of managing the timber resource. Managing the timber resource, by clearcutting or other harvest methods, ensures vigorous, well-stocked timber stands for meeting the needs of future generations.

March 7, 1996

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd, N.E.  
Suite 200

Dear Ms Gunther:

- 17.1 We are very much opposed to the Port Houghton/Cape Franshaw clearcut timber sale to supply the Ketchikan Pulp Mill.
- 17.2 The multiple use mandate of the Tongass Timber Reform Bill must be followed to protect commercial fishing, tourism and recreation, and to offer sales to local loggers and operators over a longer period of time.
- 17.3 Dr. James Crutchfield (retired) of the Fisheries Research Institute, University of Washington, who still travels all over the world consulting on fisheries problems, has said, "Alaska has the best salmon spawning streams left in the world, but you must take care of them" We all know what has happened to salmon streams in British Columbia, Washington, Oregon and California, mostly due to clearcutting the forests that once protected these streams.
- 17.4 Commercial fishing, tourism, and recreation bring into Alaska millions of dollars and supplies thousands of jobs. And we need a local timber industry supported by small local loggers and operators so we don't have to cofeoe to have all our building materials shipped in from the lower 48.
- 17.5 We must protect these resources that depend on the Tongass. Clearcutting the Tongass is exhausting the principal and soon there will be no dividends at all.

Yours truly,

*D.L. Howe*

D.L. Howe  
P.O. Box 67  
Gustavus, AK 99926



# GLACIER Guides, Inc.

JIMMIE C. ROSENBRUCH, ALASKA MASTER GUIDE & OUTFITTER  
P.O. BOX 58, GLACIER BAY, ALASKA 99828 PHONE 907-497-2252  
P.O. BOX 460, SANTA CLARA, UTAH 84765 PHONE 801-826-0973

March 7, 1996

Pam Gunther  
Parametrix, Inc.  
4808 Lake Washington Blvd., N.E.  
Suite 200  
Kirkland, Washington 98033

Dear Ms. Gunther,

We are very concerned about the future of Port Houghton!! Please hold off on this timber sale until after the Tongass Land Management Plan has been revised. Please also follow the balanced multiple use mandate of the Tongass Timber Reform Act, get rid of the 125 MMBF timber target, and adequately protect commercial fishing, hunting, tourism, recreation, and other multiple uses of the area.

PLEASE delete logging units in the Sanborn Canal watershed and all lands to the east including the Salt Chuck and please protect the Upper Port Houghton Area. This is a beautiful area with much fish and wildlife that need protection!!

We need to adequately protect the long-term health and viability of fish and wildlife in the area.

Consider offering smaller, independent timber sales to local operators over a longer period of time in the area west of Sanborn Canal. and don't just offer big quick timber sales to Ketchikan Pulp!! Please consider the concerns raised in the reports to Congress by the AFHA and Peer Review.

Your serious consideration to this matter will be greatly appreciated. Our forest is fast disappearing and we need to STOP!

Thank you.

Sincerely,

Jimmie C. Rosenbruch

Mary Ann Rosenbruch

Mary Ann Rosenbruch

cc: Abigail Kimbell, Forest Supervisor, Stikine Area, Petersburg, Alaska 99833  
Phil Janik, Regional Forester, Juneau, Alaska 99802-1628

● HUNTING ● FISHING ● CHARTERS ● PHOTOGRAPHY  
51-FOOT YACHT M/V "CHAIK"

## Responses to Glacier Guides, Inc

- 18.1 Refer to response to comments 10.2, 13.2, 5.1.
- 18.2 Refer to response to comment 12.2.
- 18.3 Refer to response to comment 12.2.
- 18.4 Refer to response to comment 3.3 and 10.2.

18.1

18.2

18.3

18.4

Port Houghton/Cape Fanshaw EIS

D-24

DEIS Public Comments





730 Polk Street San Francisco, CA 94109 415 • 776 • 2211 Fax: 415 • 776 • 0350

March 7, 1996

Abigail Kimbell  
Forest Supervisor, Stikine Area  
P.O. Box 309  
Petersburg, AK 99833

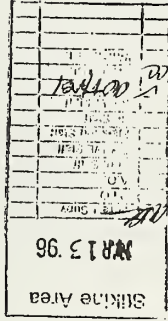
Dear Supervisor Kimbell:

This letter is to comment on the Draft Environmental Impact Statement (DEIS) for the proposed Port Houghton/Cape Fanshaw Timber Sale in the Tongass National Forest.

The Sierra Club is extremely concerned about the future of the Port Houghton area, in considerable part a roadless area that was listed for wilderness designation in the 1989 version of the Tongass Timber Reform Act passed by the House of Representatives. We believe the Forest Service has a real obligation to manage this area for the long-term benefit of all its many uses--not only for the benefit of maximum timber production. Other uses of the area, such as commercial fisheries and tourism, offer a major portion of the income for local communities of the area, and it is puzzling why the impacts of the proposed timber sale on these other beneficial and important uses have not been seriously considered. This timber sale would make sense if and only if timber were mandated to be the dominant use on the Tongass Forest. Since this is not the case, the Forest Service must by law give equal and adequate consideration to the needs of other uses--commercial and recreational. It must consider the watersheds, the soil, the wildlife, the fisheries, the biological diversity.

Specifically, we ask you to address the following concerns in your final Environmental Impact Statement:

- 19.1 \* the final EIS should be delayed until after publication of the revision of the Tongass Land Management Plan;
- 19.2 \* the inappropriately-chosen timber target of 125 million board feet should be dropped in order to follow the true multiple-use mandate of the Tongass Timber Reform Act, with incorporation of suitable mechanisms to protect commercial fishing, tourism, and regional recreation;
- 19.3 \* the economic impacts to Port Houghton should be analysed in the final EIS, as they relate to the important fishing industry for Petersburg and the growing tourism industry as well as analysis of the environmental impacts of such large-scale clearcutting;
- 19.4 \* both the headwaters forests above Sanborn Canal and the spectacular Salt Chuck area, a promising tourism destination, should be off limits to logging or road construction.)



3/13/96

Responses to Sierra Club, San Francisco, CA

- 19.1 Comment noted. Commercial fisheries and tourism are addressed in Sections 3.2.3, 3.7.6, 4.2.1.9 and 4.7. of the EIS. Also refer to response to comment 13.2.
- 19.2 Refer to response to comment 10.2.
- 19.3 Refer to response to comments 5.1 and 13.2.
- 19.4 The fishing and tourism industry are addressed in Sections 3.2, 3.7, 4.2 and 4.7 of the EIS. Refer to Table 4-2 which shows the amount of clearcutting compared to other types of partial cuts proposed for the action alternatives. A discussion of why specific silvicultural systems and methods were selected for units in the project area is provided in Appendix A.
- 19.5 Refer to response to comment 18.2.



Refer to response to comment 12.2.

19.6

The DEIS was available for public review and comment from January 20 to March 26, for a total of 67 days. Subsistence hearings occurred in Hobart Bay and Petersburg on March 4 and 5, respectively. Open houses occurred in Hobart Bay, Petersburg, Kake, and Juneau from March 4 to 7, 1995. The comment period on the Draft EIS exceeded the minimum 45-day comment period as required by the CEQ regulations (40 CFR Part 1506.10). The public comment period on the Revised DEIS will be at least 45 days.

19.7

\* there should be provided an adequate scientific basis for proposals in the DEIS by responding to disclosures and concerns presented in two recent reports to Congress which pointed to the inadequacy of Forest Service protection for fish and wildlife habitat, the Anadromous Fish Habitat Assessment and the Review of Wildlife Management and Conservation Biology. The DEIS gives no justification for ignoring the substantive precepts analysed in these documents.

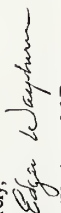
19.6

In conclusion, let me repeat to you that a forest is beyond doubt *more* than the economic value of its trees at the sawmill. It is the duty of the Forest Service to remember that.

Thank you for considering these comments and addressing our serious concerns.

In order to give members of our organization throughout the United States who have a serious and intensive interest in management of our valuable forest resources in Alaska sufficient time to prepare thorough comments on your DEIS, I hereby request that you grant at least a 30-day extension in the comment period for this document.

19.7

Sincerely,  
  
 Edgar Wayburn, M.D.  
 Chairman, Alaska Task Force  
 cc. Regional Forester Phil Janik  
 Sen. Dianne Feinstein  
 Sen Barbara Boxer  
 Rep George Miller  
 Rep. Nancy Pelosi  
 Assistant Secretary Jim Lyons  
 SEACC



- 20.1 Refer to response to comment 10.2.
- 20.2 Refer to response to comment 13.2 and 5.1.
- 20.3 Refer to response to comment 18.2.

3/8/96  
 Abigail Kimball  
 Forest Supervisor  
 Sitkinne Area  
 POB 309  
 Petersburg, AK 99833  
 Nece-von  
 MAR 13 1996  
 Tongass N.F.

- 20.1 Dear Mr. Kimball:  
 Please hold off on the Port  
 Houghton Timber sale until after the  
 Tongass Land Management Plan has been  
 devised.
- 20.2 Follow the balanced multiple  
 use mandate of the Tongass Timber  
 Reform Act, get rid of the 10% transferable  
 Timber Trust, and adequately protect  
 commercial fishing, tourism, recreation,  
 and other multiple uses of the area.
- 20.3 Delete logging units in the  
 Sanborn Canal watershed and all lands  
 to the east including the Salt Chuck  
 and large portion for the Upper  
 Port Houghton area.



Refer to response to comment 10.2, 3.3, and 12.2.

20.4

20.4 Offer smaller independent timber sales to local operations over a longer period of time in the area west of the Soudan Canal, and not just offer big, quick timber sales to Kesteven Mfg. Address the concerns raised in the report to Congress (APR 17 & New Review) and adequately protect the long-term health & viability of the & wildlife in the area.

John Saranac  
24 March 2009  
John Saranac  
10509



- 21.1 Refer to response to comment 3.3 and 18.2.
- 21.2 Refer to response to comment 6.2 and 12.2.
- 21.3 Comment noted.
- 21.4 Refer to response to comment 13.2.

March 9, 1996

Pam Gunther  
Parametrix, Inc  
5808 Lake Washington Blvd, NE Suite 200  
Kirkland, WA 98033

Dear Ms Gunther

I am very much opposed to the Port Houghton/  
Cape Fanshaw clearcut timber sale to supply 125  
MMBF to the Ketchikan Pulp Mill. Manborn Canal  
and the Salt Chuck are very important salmon  
spawning areas and neither area should ever be  
roaded or logged.

21.1

I am a commercial fisherman and do not want to  
see our Alaskan salmon streams, the best left  
in the world, go the way they have in British  
Columbia, Washington, Oregon, and California  
due to poor logging practices.

21.2

We must protect the Tongass to support the  
people of S.E. Alaska who depend on it, such as  
commercial fishermen, people in the growing  
tourist and recreation business, and the small  
local logger and processor, who can supply us  
with building material so we don't have to have  
all our lumber shipped up from the lower 48.

21.3

We must follow the balanced multiple use mandate  
of the Tongass Timber Reform Act.

21.4

Yours Truly,

*Fred C. Howe*  
Fred C. Howe  
Box 9  
Elfin Cove, AK 99825



Sliding Area	
APR 3 '96	
USE	DATE
✓ FS	
AO	
EEA	
PAC	
GL	
✓ PMA	
PSD	
WROD	
Fin	

Jacqueline Hastings  
9210 Mountain Home Road  
Leavenworth WA 98826  
March 9, 1996

Dear Forest Supervisor Kimbell

I am writing to comment on the proposed Port Houghton / Cape Fanshaw timber sale.

My family lives in Tunaau and we are all horrified by this proposed sale. The timber target seems arbitrary as well as extremely high, and I do not see how the sale addresses objectives of multiple use and ecosystem management.

22.1

The DEIS does not adequately address social concerns and community growth. It does not promote the interests of diverse small timber fishing and tourism businesses developing sustainable resources. This is because 1) ~~that~~ it does not consider how to target timber sales to the appropriate scale for ~~best~~ small local timber operations; 2) it does not adequately protect recreation, tourism, and salmon production in the Sanborn Canal and Salt Chuck areas; and 3) it does not adequately address the Anadromous Fish Habitat Assessment and the Review of Wildlife Management and Conservation Biology in considering protection of multiple values, especially the fishing and tourism industries.

22.2

Responses to Jacqueline Hastings

22.1

Refer to response to comment 13.2 and discussion of ecosystem management in Section 2.1 of the Revised DEIS.

22.2

Refer to response to comments 10.2 and 18.2.



Responses to Jacqueline Haskins

22.3

Refer to response to comment 5.1.

Haskins p. 2

22.4

Refer to response to comment 18.2.

22.5

Refer to response to comment 12.2.

22.6

Refer to response to comment 10.2.

22.7

For a review of economic impacts of the proposed harvest, refer to sections 4.1.3, 4.2.1.9, and 4.7.1.7 in the Revised DEIS.

Please answer the following in any future analysis:

22.3

\* Explain what the 15 MMBF target is based on, and how it promotes ecosystem management.

22.4

\* Explain why any timber should come from the potential wilderness areas of upper Port Houghton and Sanborn Canal, rather than from other, already impacted areas.

22.5

\* Adequately address the concerns raised in the Anadromous Fish Habitat Assessment and the Review of Wildlife Management and Conservation Biology (reports to Congress).

22.6

\* Consider smaller-scale, longer-term, timber harvest alternatives more beneficial for and amenable to small local timber operations.

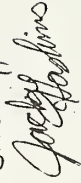
22.7

\* Realistically assess the long term economic value of fishing, tourism and recreation in this area, relative to the economic value of the proposed sale; how the proposed sale might economically impact fishing, tourism, and recreation.

Thank you for this opportunity to comment.

cc Pam Gunther  
Parametrix, Inc.

cc Phil Janik  
Regional Forester

Sincerely,  


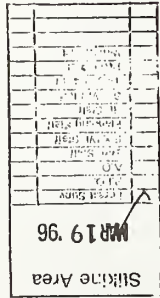
Port Houghton/Cape Fanshaw EIS

D-31

DEIS Public Comments



Allegais Kimbell, Forest Supervisor  
Sitka Area-Tongass National Forest  
P.O. Box 309  
Petersburg AK 99833



Robert Burns  
P.O. Box 362  
Warren VT 05674

10 March 1996

Dear Forest Supervisor Kimbell:

I am writing to offer comments on the proposal Port Houghton/Cape Fanshaw Timber Sale.

When I first heard that the comment period for this proposal will close on the same date as the release of the TLM, I thought it ironic and, frankly, silly that the concerns about health of fish; wildlife population and multiple use concerns which are dealt with in the TLM but not the Port Houghton DEIS will be deemed irrelevant for the purpose of this sale proposal. I believe any consideration of this area ought forward into the TLM has been released and sustained the 90 day comment period. This way management activities will better reflect the needs of all forest users. Since the 125HMBF target was established without any public process of review, it seems particularly cavities to impose this un-economic, un-scientific, single-proposed timber-first approach of management on a delicate wilderness area.

In particular:

- Sanborn Canal & Salt Creek ought to be off-limits to roading & logging. Both are important anadromous fish habitat and hold value & allure to tourists & tour operators.
- Upper Port Houghton's value to commercial fishing has been trivialized in the scope of this proposed sale. Fisheries & non-timber values must be protected or you are not doing your job to the American people in my view.
- Rather than offering a one-fall-sweep timber sale that benefits Kotlikan Polp it will benefit regional stability far more to offer smaller operators less-dramatic sales over a longer time period in the area west of the Sanborn Canal.
- Wait to fly this sale until after the TLM revision, and address concerns in the AF HA and per Review of Wildlife Management and Conservation Biology.

Sincerely yours,

Robert Burns

CC: Phil Jamik, Regional Forester

#### Responses to Robert Burns

- |      |  |
|------|--|
| 23.1 | Refer to response to comment 10.2 and 5.1.   |
| 23.2 | Refer to response to comment 18.2.           |
| 23.3 | Refer to response to comments 12.2 and 13.2. |
| 23.4 | Refer to response to comments 3.3 and 10.2.  |
| 23.5 | Refer to response to comments 10.2 and 12.2. |



Yvette Ortega  
56 Hungerford Terr.  
Burlington, VT 05401  
March 10, 1996

Ram Guntner  
Parametrix, Inc.  
5808 Lake Washington Blvd, NE  
Suite 200  
Kirkland, WA 98033

Dear Ram:

As a concerned citizen of this country, I am writing regarding the future of Port Houghton, Alaska. Because this area is critical for commercial fishing, recreation, and tourism, its status has a significant bearing on multiple use objectives for the Tongass on the whole. Therefore, the Port Houghton timber sale should be put off until after the revision of TLMP.

Moreover, the balanced multiple use mandate of the TTRA directs the Forest Service to protect commercial fishing, tourism, recreation etc. - the proposed timber target of 125 mmBF threatens this.

I would also like to see smaller, independent sales offered to local operators over a longer period of time versus one, big sale to Ketchikan Pulp. Logging units in the Sanborn canal watershed and all lands east should be deleted, and the Upper Port Houghton area should be protected.

Finally, the Forest Service and planners should address the concerns raised in the reports to Congress (AFHA and Peer Review documents).

Thank you for your consideration.

Yvette Ortega

#### Responses to Yvette Ortega

- |      |  |
|------|--|
| 24.1 | Refer to response to comments 13.2 and 10.2.       |
| 24.2 | Refer to response to comments 13.2.                |
| 24.3 | Refer to response to comments 3.3, 18.2, and 10.2. |
| 24.4 | Refer to response to comment 12.2.                 |

24.1

24.2

24.3

24.4



**25.1** Refer to response to comments 13.2 and 10.2.

**25.2** Refer to response to comment 18.2.

**25.3** Refer to response to comment 12.2.

Charles & JoAnn Lundfelt  
Box 20489  
Juneau, Alaska 99802  
March 10, 1995

Abigail Kimbell  
Forest Supervisor, Stikine Area  
P.O. Box 309  
Petersburg, AK 99833

We are very concerned about proposed clear cutting in the Port Houghton area. Clear cutting this area obviously does NOT support the balanced multiple-use provisions of the Tongass Timber Reform Act. For this reason alone, the least you can do is to hold up this timber sale until the final Tongass Land Management Plan revisions are complete. Act prudently now to prevent later regrets.

Specifically we urge permanent protection of the logging units in Sanborn Canal watershed, and all lands to the east, including Salt Chuck. Upper Port Houghton area should also be permanently protected.

Please be thorough and take the time to reply to concerns raised in reports to Congress (AFHA and Peer Review). Regardless of pressures from private industry, it is ultimately your primary responsibility to protect the long-term health of forests, fish and wildlife in these areas.

Sincerely yours,

Sincerely yours,  
John A. Rudelt

Ann A. Lundfelt

cc: Pam Gunther, Parametrix, Inc.  
Phil Janik, Regional Forester

Sukine Area
MAR 13 '96
<i>[Signature]</i>
257 Surv.
100
L.O.
T & W Staff
Eating Staff
Cooking Staff
V. Capted <i>[Signature]</i>

D-34

Port Houghton/Cape Fanshaw EIS

DEIS Public Comments



Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

3/11/96

Dear Ms. Gunther,

I am writing concerning the multiple use of the Port Houghton area of the Tongass National Forest. The Forest Service is continuing to favor big timber companies over any other use of the forest. This pristine area is a source of spawning habitat for salmon, and is a tourist attraction in its present unlogged state.

26.1

26.2

What about the two recent reports to congress showing that the current Forest Service protections of fish and wildlife habitat are inadequate? The DEIS ignores these reports.

26.3

I would like to see the 125MMBF timber target for this area eliminated, and instead offer timber to smaller, independent logging interests over a longer period of time.

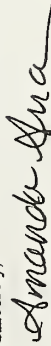
26.4

Most importantly I would like to see the Forest Service hold off on any timber sales until the revision of TLMP, and to completely eliminate timber sales in the Sanborn Canal Watershed and in the upper Port Houghton area.

26.5

The Forest Service needs to follow its own directives, namely, to manage the forest for multiple use, and protection of fish and wildlife habitat.

Sincerely,



Amanda Arra  
P.O. Box 211093  
Auke BAY, AK 99821

26.1

Comment noted.

26.2

Refer to response to comment 12.2.

26.3

Refer to response to comments 5.1 and 10.2.

26.4

Refer to response to comments 10.2 and 18.2.

26.5

Refer to response to comment 13.2.



Responses to Bryan Benkman

- 27.1 Refer to response to comment 13.2 and 12.2.
- 27.2 Refer to responses to comments 6.2, 10.1, 10.3, and 12.2.
- 27.3 Comment noted.

Bryan Benkman  
F/V Kona Rose, Inc  
10533 14th Avenue NW  
Seattle, WA 98177-5305

March 11, 1996


Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

27.1 I have been made aware of the proposed Port Houghton/Cape Fanshaw Timber Sale. I believe the Forest Service has an obligation as described in the Tongass Timber Reform Act to manage for balanced multiple use. This would require adequately protecting commercial fishing, tourism, recreation, and other uses of the area. The proposed 125 MMBF timber harvest would essentially create a single use of the area for a decade or longer. The detrimental effects of logging on fishery resources are well documented. In two recent reports to Congress, *Anadromous Fish Habitat Assessment* and the *Review of Wildlife Management and Conservation Biology*, existing Forest Service protections for fish and wildlife habitat were found to be inadequate. This problem needs to be addressed.

27.2 I am a commercial salmon fisherman in Southeast Alaska, and I am well aware of the fantastic salmon resource that is threatened by logging in the Sanborn Canal and the Salt Chuck watersheds. I have experienced in the last several years, a dramatic decline in local pink salmon stocks in locations of Sea Otter Sound and Cordova Bay on the west side of Prince of Wales Island that I believe are directly attributable to the logging that has occurred on a grand scale on that island. As a Washington state resident I am well aware of the serious decline of salmon in this state, which has resulted from neglect of the habitat and the pressures of development along the rivers here.

27.3 The economy of SE Alaska is very dependent on commercial fishing, which if managed well will be an unending resource. It would be tragic to diminish this future for just a few years of quick dollars.

Thankyou for your consideration of this issue.

  
Bryan Benkman



4103 Blackerby Street  
Juneau, AK 99801  
March 12, 1996

Abigail Kimbell  
USFS Supervisor, Stikine Area  
POB 309  
Petersburg, AK 99833

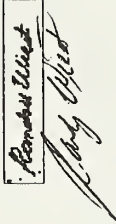
Dear Ms. Kimbell:

As a Southeast Alaska resident who has visited the mainland coast between Wrangell and Juneau on several different occasions by small craft, I am writing to express my concerns about the proposed sale of 125mmbf of timber in the Port Houghton area of that section of the coast. I believe this type of massive timber sale would be harmful in the long run to commercial fishers in the area, local recreational users such as myself and also to our burgeoning but relatively low impact tourist industry.

I believe if timber in this area, which was actually originally considered for wilderness designation, is to be offered at all, it should be done so in smaller tracts available to local independent operators and not to the likes of Ketchikan Pulp. I believe logging should be excluded from the Upper Port Houghton area, the Salt Chuck and the Sanborn Canal watershed because of the unacceptable risks to fisheries, wildlife and viewsheds.

We need to get behind smaller scale timber sales and not just largescale offerings that ultimately degrade the value of the forest to its other multiple users besides Ketchikan Pulp Company.

Sincerely,



cc: Phil Janik

- 28.1 Refer to response to comment 10.3, 12.1, and 19.1.
- 28.2 Refer to response to comments 3.3, 10.2, and 18.2.
- 28.3 Refer to response to comments 3.3 and 10.2.

REC-100

MAR 21 1996

TONGASS N.F.



Responses to Richard M. Farnell

- |      |   |
|------|---|
| 29.1 | Refer to response to comment 10.2.          |
| 29.2 | Refer to response to comment 5.1 and 13.2.  |
| 29.3 | Refer to response to comment 18.2.          |
| 29.4 | Refer to response to comment 12.2.          |
| 29.5 | Refer to response to comments 3.3 and 10.2. |

P.O. Box 21756  
Juneau, AK 99802  
March 12, 1996

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

RE: Port Houghton Timber Sale

Dear Ms. Gunther:

Please inform the Forest Service, Sitkine Region, of the following comments I have regarding the subject timber sale:

1. This sale should not be held pending release of the Tongass Land Management Plan, which would provide an overall picture of what is happening to the Tongass. To do otherwise would be to manage the forest improperly, as a big picture is needed about the health of the forest as a whole.
2. The selection of 125 MMBF harvest level for the area was done without adequate justification or regard for other uses of the forest, such as recreation, tourism, and fishing.
3. The Upper Port Houghton Area needs special protection for the unique forest values there - logging plans for that area should be deleted. Also, the logging units in the Sanborn Canal watershed and all lands to the east, including the Salt Chuck, should be deleted.
4. The principles raised in the AFHA and Peer Review should be followed for this sale.
5. Stop offering huge area timber sales to KPC; smaller independent sales should be offered instead - treat KPC just like the independents - they'll be out of business soon anyway.

Sincerely,



Richard M. Farnell



1128 Weidman Rd.  
Town and Country, MO 63017  
March 12, 1996

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd, NE  
Suite 200  
Kirkland, WA 98033

Dear Ms Gunther:

I hear harrowing tales about timber sales in the Tongass. It's true I don't live in Alaska, but I vacation there. I love it and so do lots of others from the Lower 48 and we come because of the beauty, the wildness, the wildlife, the remoteness, the difference between what we have in our urban daily lives and the regeneration Alaska offers to our spirits. That means \$\$ for Alaska.

When you look with a keen financial eye, you can see that these attributes that Alaska, and the Tongass especially have, are worth \$\$\$\$\$\$. And not just one time bucks, but over and over again. SUSTAINABLY! What a wise choice to preserve these roadless pristine areas just the way they are. Not only for present and future economic reasons for recreation, but for fisheries and biodiversity.

Surely we have enough foresight to tell the difference between the mistakes of the past and the opportunities of the future. Did you know the Gobi Desert was once a deep rich forest? Did you know Easter Islands were once covered with forest? What happened to the Cedars of Lebanon? Have you seen pictures of what the Holy Land looks like today? The Fertile Crescent around Mesopotamia which was the cradle of civilization is now Iraq and looks like a wasteland. The Black Forest of Germany, the moors of Scotland, in fact all of Europe were once forest. We are skinning our planet. We should stop before it is too late. We have an historical perspective. We should look over our shoulder every now and then and pay attention. Someday we will show our grandchildren pictures in books of what old growth forests looked like, because there won't be any left. Just like dodo birds and Tasmanian Devils and ivory billed woodpeckers.

Please use reason and foresight and hindsight and don't allow the Port Houghton and Cape Fanshaw timber sale go to on the chopping block. It isn't even necessary. Why are we in such a big hurry to ruin everything?

Thanks for listening. Please do something to stop the chop. Hold off on this sale until the Tongass LMP is revised. Follow the TTRA, get rid of 125 MMBF target, and protect commercial fishing, tourism, recreation and multiple use. Delete logging units in the Sanborn Canal watershed and all lands east including Salt Chuck and urge protection for the Upper Port Houghton Area. Offer small sales and not just to Ketchikan Pulp.

Rachel Crandell

30.1  
Comment noted.

30.2  
Refer to response to comment 13.2. The new Forest Plan includes new measures for protecting fish habitat and biodiversity. It is important to manage the timber resource to provide jobs and ensure an adequate supply of timber for future generations.

30.3  
Approximately 14 million acres (77 percent) of the Tongass National Forest is off limits to logging. Under the new Forest Plan, 84 percent of the commercial grade old growth will remain intact after 100 years.

30.4  
Dependent industry in Southeast Alaska needs the timber that is available in the Port Houghton/Cape Fanshaw project area under the Forest Plan.

30.5  
Refer to response to comments 10.2, 5.1, 13.3, 18.2, and 3.3. All TTRA regulations would be followed for the proposed harvest.



Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

3/14/99

Dear Pam,

I am writing concerning the Draft Environmental Impact Statement (DEIS) for the Tongass National Forest Port Houghton / Cape Fanshaw Timber Sale. I am concerned about the future of Port Houghton, and would like my comments to be considered in the planning process for timber sales in this area.

This sale fails to follow the balanced multiple use mandate of the Tongass Timber Reform Act by inadequately protecting the immense fishing, tourism, and recreation values of this area. This large timber sale will significantly affect the wildlife and other users of the Port Houghton area for the benefit of the Ketchikan Pulp Mill. The Forest Service should follow the multiple use mandate of the Tongass Timber Reform Act, abandon the 125 MMBF timber target, and use the DEIS process to adequately protect commercial fishing, tourism, recreation, and other multiple uses of the area.


The immense natural beauty and value of this area was recognized by the U.S. Congress in 1989 when the House voted to make Port Houghton a wilderness area. Although wilderness status was never granted, the Forest Service is still responsible to protect the long-term fish and wildlife values of this outstanding area for the benefit of all its uses. This can best be achieved by deleting all logging units in the Sanborn Canal watershed and all lands to the east including the Salt Chuck. In addition, the Upper Port Houghton Area should be protected from future logging.

The Tongass Land Management Plan (TLMP) will be issued soon by the Forest Service. This timber sale should be delayed until the TLMP is revised and in place, so that this sale is integral with long-term sustainable planning for the Tongass.

The DEIS specifies a Timber Sale of 125 million board feet for the Cape Fanshaw / Port Houghton area. There is no basis for the logging of 125 million board feet in terms of multiple use planning or ecosystem health. Instead, small independent timber sales are in the best interest of the Tongass and the multiple users of this area. By spreading the harvest out over several years, the economy is given a steady gains, while employing more people per tree, than large, quick sales to Ketchikan Pulp.

The DEIS should address the concerns raised in two Congressional Reports, Anadromous Fish Habitat Assessment and the Peer Review of Wildlife Management and Conservation Biology, in providing for the adequate long-term protection of fish and wildlife habitat.

Thank You for your consideration. The future of the Tongass is dependent upon people like you for the long-term sustainable health of its wildlife and people.

  
Jim Rehfeldt  
327 Highland Drive  
Juneau, AK 99801

## Responses to Jim Rehfeldt

- 31.1 Refer to response to comments 3.3, 5.1, 13.2, and 17.1.
- 31.2 Refer to response to comment 12.2 and 18.2, as well as revisions to Section 1.3.1 of the Revised DEIS which discusses wilderness and the TTRA. No alternative in the Revised DEIS proposes timber harvest in the vicinity of Sandborn Canal or eastward in the project area.
- 31.3 Refer to response to comment 10.2.
- 31.4 Refer to response to comments 5.1, 10.2, and 3.3.
- 31.5 Refer to response to comment 12.2.
- 31.6 Comment noted.



**Responses to LaVern Beier**

- 32.1

March 14, 1996

Abigail Kimbell  
Forest Supervisor, Stikine Area  
Box 309  
Petersburg, Ak 99833  
LaVern Beier  
Box 021116  
Juneau, Ak 99802

Comment noted, and additional information on guided bear hunts has been added to Section 3.7.6 in the Revised DEIS.
- 32.2

Big game guided tours are acknowledged as a legitimate economic use of the project area in Section 3.7.6 of the Revised DEIS.
- 32.3

Thank you for providing this insightful historical perspective of commercial guide hunting in Southeast Alaska.

D-41

Port Houghton/Cape Fanshaw EIS

DEIS Public Comments

32.1

Dear Forest Supervisor Kimbell;  
I would like to comment on Port Houghton/Cape Fanshaw Timber Sale Project.

I am a guide-outfitter who has 26 years of continuous use of Port Houghton since 1970. Reviewing your plans for the future of Port Houghton greatly concerns me and other guides and small charter boat operators I know.

My paramount concern, and the concern of any bear guide is the loss of yet another and the last and with out question the best remaining wilderness guided non resident black and cinnamon bear hunting area on the mainland of the Tongass. This can easily be documented but wasn't in the plan. No other black bear area along the mainland of the Tongass can compare to the high attributes Port Houghton provides both bear guides and their non resident clients.

32.2

Clearly, it is apparent in the Port Houghton plan, the Forest Service does not acknowledge bear guides as a legitimate Southeast lifestyle who have contributed any historical social and economic significance. Consequently, no considerations are provided to meet the requirements of guides. I wish to challenge this over sight and assumption.

32.3

I can easily document the social importance of brown and black bear hunting and related activities with historical harvest records in Southeast back to 1798. In addition, I have compiled the names of registered guides and individuals who have guided in Southeast back to the 1880s. Consequently, some have considered me a Southeast wildlife and guide historian.

Southeast boat guides and big game guiding have a longer history of utilizing fish and game of Southeast Alaska than any user group other than Alaska natives and early subsisting pioneers. Some variations of boat guides can be easily traced back to the 1880s.



Big game hunters traveled by steamship from America to the Territory of Alaska to hunt its plentiful population of game. Sportsmen would eventually disembark in the ports of Wrangell, Sitka or Juneau to begin their hunting expedition. Big game hunting was big business in the Territory and for many years the Governor himself would meet the sportsman when they arrived. He often issued hunting licenses and recommended guides. Into the 1940s these guides were deputized and acted as game wardens.

Lacking both railroads and roads for travel Southeast Alaska provided travel for guides and sportsman by boat through a unique maritime archipelago with passages, canals, bays and rivers. Sportsmen referred to Alaska as "the Sportsmen's Paradise". The wooden canoe, gas or steam boat provided transportation up the mainland glacier streams. Many of the early hunting expeditions before the turn of the century followed the trails of the gold rush crowd traveling against the current of the mainland glacier streams.

Market hunting of brown bears was legal up until 1925. That year the Alaska Game Commission was also established to manage the Territory's game. With the establishment of the Alaska Game Commission, big game guides in Fur District #1 (Southeast Alaska) were required to obtain licenses. Guides north of 141st meridian had been required to be licensed since 1908.

Seeing the business opportunities in Southeast Alaska in the early 1920s Campbell Church of Seattle started what was likely the first commercial charter boat cruising operation in Southeast Alaska. Church provided guided fishing, hunting, sight seeing and wildlife viewing expeditions. The eccentric Church had divided Southeast Alaska into his own game management areas years before there were wildlife managers. Church operated as many as eight classic yachts ranging in size from 70 to 142 feet. Church catered to the rich and famous, people like Eastman Kodak, Gene Harlow, the Mellon Family, Arthur Newton Pack, Ferber McGee and Molly and Bing Crosby just to name a few. The yachts generally worked out of Ketchikan and sometimes Juneau. Nearly all of the original guides licensed in Southeast were employed by Church and lived in Ketchikan, Wrangell, Petersburg and a few from Juneau. None from Sitka until the 1950s. In the 1930s there were approximately 25 licensed big game guides in all of Southeast Alaska.



Prior to and during the era of the Civil Conservation Corp, Church and his guides pioneered their own hiking trails to access numerous lakes and hunting grounds throughout the Tongass. Church's boats and canoes were cached on lakes and camps were established. The Church guiding operation owned "the Sportsman Paradise", Southeast Alaska.

The war effort of WWII claimed several of the Church yachts for patrols and by 1955 Church was finished. During the late 1940s and early 1950s several other charter boat owners from Southeast attempted to take over where Church left off. In addition several of the guides who had worked for Church struck out to become independent and operate their own guide boat. Consequently, the Southeast bear boat guides as we know them today were first conceived aboard a Church yacht.

Today like 100 years ago the opportunity to experience a bear hunt has historically been the primary draw of nonresident hunters to Southeast Alaska. A 10 day brown bear hunt may bring upwards of \$11,000. A 5 day guided non resident black bear hunt may bring upwards of \$5000. Bear hunting in Southeast has traditionally been an aesthetically pleasing experience. It is not uncommon to see 50 different bears in a 10-day hunt.

During the spring season male blue grouse are displaying, filling the bays with their pulsating "hoots." Fishing can be good, clam digging is excellent, a variety of crabs can be gathered, and the evenings may bring large numbers of deer to the beaches. Marine mammals such as seals, sea lions, porpoises, humpback and killer whales can be observed. Migrating waterfowl, hundreds of eagles and other birds are plentiful. All these experiences can combine to make a memorable hunt. Once the guide boat is anchored, hunting forays are made by skiff from the larger boat. The larger boats provide roving base camps, which guard against hunter crowding through their mobility and enable the guides to survey a great deal of country.

For over 100 years Southeast guides have operated from boat based camps roving throughout Southeast waters. Diversity of game species, micro climates effecting seasonal distribution of game species, boat anchorages and over crowding of user groups occurring in specific areas are important factors determining geographic locations of guide-outfitter areas.



Responses to LaVern Beier

- 32.4 Refer to the revisions in Section 3.7.6.  
 32.5 Refer to response to comment 13.2.  
 32.6 Comment noted.

In 1925 when the Alaska Game Commission was established guides in Fur District No. 1 (GMUs 1-5) were then first required to become licensed. To the best I can document there have been approximately 225 guides licensed in all of Southeast from 1925 to 1996. In addition, each guide may legally employ up to three assistant guides. Today there are approximately 50 licensed guides in the Tongass.

**32.4** Guides are in an unfortunate situation; because of the nature of their life style and supply and demand, big game guides are a small quiet minority. Because of this it is apparent the Forest Service planning process only acknowledges the requirements and needs of the vocal majority and their financial returns. "... the Forest Service plan states referring to tourism, "... the project area is not significant economically, because use is limited in comparison to other higher use areas." Bear hunters are also tourists.

The plan suggests if Port Houghton doesn't attract as many tourists as areas like Tracy/Endicott or LeConte Glacier then the financial return for Port Houghton must be insignificant. Because these advertised designated wilderness areas are hampered with over crowding by commercialization of the masses, small boat operators, guides and independent travelers struggle to seek out the rare primitive area like Port Houghton. The Port Houghton plan makes no considerations for these users. It appears if an individual wants to experience a wilderness experience the Forest Service expects all users to stack up on top of one another in the designated wilderness areas.

**32.5** Tongass wide the Forest Service makes no considerations for small charter boats, individual travelers or guide outfitters operating outside any designated wilderness area.

**32.6** Since the 1920s Port Houghton, Hobart Bay and Windham Bay and Tracy/Endicott have been crucial hunting locations for guided hunts by guides. It is easily documented no guided non resident hunt has been conducted in Hobart Bay since 1981 when Goldbelt began logging. In addition, Windham Bay seldom provides a wilderness experience because of competition and conflicts with loggers from Hobart Bay and private cabin owners and lodge within the bay.



32.7	Because Goldbelt discourages hunting on their land, hunting and fishing competition has been continuous at Port Houghton and Windham Bay. In addition a number of loggers from Hobart Bay have setup outfitted black bear hunting camps catering to bear hunters. There have been some years when these logger operated bear hunting camps have forced out long-time licensed bear hunting guides. In addition, a number of loggers from Hobart Bay are also commercial dungeness crab fishermen. There have been times when they have set so many crab pots in Sanborn Canal it has been nearly impossible to anchor a larger boat inside the canal.		
	What regulations gives these newly established logging camps and their residents the right to take over an area they move into and harvest the fish and game that inhabits this area with complete disregard for other traditional users? The Port Houghton/Cape Fanshaw plan appears to condone this practice and it goes out of the way to accommodate the needs of these newly immigrating loggers more than long time residents, guides or recreational users.		
	This Forest Service plan also suggests a hunter's successful hunt is paramount over all other attributes. It is suggested the negative visual surroundings and the amount of disturbance and competition in the area where a hunt is conducted does not and should not make any difference in a hunter being successful. This makes one believe the Forest Service believe a successful bear hunting experience associated with a landfall equals the experience of a successful bear hunt in a premiere primitive area such as Port Houghton.		
	Historically guides require undeveloped wild areas or wilderness. Every year, beginning in the mid 1950's these wild areas (undeveloped, unlogged and roadless) have become smaller and smaller and fewer and fewer. Today there are few remaining. The potential wild areas (undeveloped unlogged and roadless) has shrunk rapidly in addition to the steady demands by other user groups who had little history utilizing these same wild areas until recent time. Consequently, every year there are more and more people, ie. charter boats, tourists seeking out fewer and fewer wild areas creating over crowding, competition, conflicts and potential limitations for all.		

32.8

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32.9

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32.10

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Responses to LaVern Beier

32.11	Comment noted.
32.12	Refer to response to comment 10.2.
32.13	Refer to response to comment 13.2.
32.14	Refer to response to comment 18.2.
32.15	Refer to response to comment 18.2.
32.16	Comment noted.
32.17	Comment noted.

Other than a handful of us guides, Port Houghton has few constituents who have any lengthy history visiting or who are intimately familiar with the eco system there. According to the Forest Service planning process the composition of constituents unfortunately works to the disadvantage of Port Houghton. This is because of it's geographic location in relationship to any rural communities. For most travelers Port Houghton has historically been a little inaccessible. This inaccessible wilderness quality has also been the greatest value and attraction for those of us who have had a long history utilizing Port Houghton. Rating an area like Port Houghton in terms of historical financial returns I believe is extremely unfair.

32.11

1. Our only hope as guides and long-term users of Port Houghton is for the Port Houghton timber sale to be held off until TLMP has been revised.

32.12

2. Could one hope to witness a multiple use approach in the Port Houghton plan? My definition of multiple use presently does not exist in the Port Houghton plan as written.

32.13

3. To keep intact any hope of multiple use I believe it imperative to delete all logging units and roads within Sanborn Canal.

32.14

4. In addition I also believe it imperative to delete all logging units and roads in East Houghton including the Salt Chuck.

32.15

The management policies and goals applied throughout the Tongass by the Forest Service does not leave me to feel very hopeful. I do not believe it to be earthly possible for the Forest Service to continue to provide all the different forest resource user groups what they desire and require from the forest in the long-term.

32.16

Us guides are certain, we will witness at Port Houghton exactly what we have witnessed at other bays and Hobart Bay where logging camps have set up; once the loggers arrive in Port Houghton, Port Houghton and guided non resident bear hunts in Port Houghton will be just another memory in Southeast history. It is clear, past history has shown us, the loggers will own it.

32.17

Thank you for the opportunity to comment.

Sincerely,

*LaVern Beier*  
LaVern Beier



33.1

Comment noted.

33.2

Refer to response to comment 13.2.

P.O. Box 210003  
Auke Bay, Alaska 99821  
March 15, 1996

Phil Janek  
Regional Forester  
USFS  
P.O. Box 21628  
Juneau, Alaska 99802-1628

Re: Port Houghton Comments

Dear Mr. Janek:

Extensive logging for many years has left major portions of southern Southeast Alaska nearly useless for other uses--especially tourism and sportfish guiding, and subsistence. Its time that logging be scaled back (not necessarily eliminated) until loggers can start cutting second growth on previously logged areas. Any logging done until second growth can be re-entered should be done in areas already roaded--no new unroaded-yet unimpacted areas should be entered.

33.1

Multiple use of the Tongass is the only solution to management of public lands. This is most critical on public real estate like the Tongass National Forest., since there's no other areas/habitat like it left anywhere else in this hemisphere. Too bad logging continued essentially unchecked for so many years in southern Southeast. Because of the extensive impacts from logging already impacting major areas of the Tongass--unentered watersheds and drainages should not be entered. This will leave about half of the Tongass (that is timbered lands) to other uses (both public and nonlogging commercial).

33.2

This applies to the Port Houghton.

Thanks for the opportunity to comment. Please keep my name on your mailing list.

Respectively,

*Mike Bethers*

Mike Bethers  
Fishing guide/Charter operator

RECEIVED

MAR 13 1996  
REGIONAL FORESTER  
JUNEAU, ALASKA  
TIMBER MANAGEMENT





**Jack Slaght**

P.O. Box 2117  
Petersburg, AK 99833

Telephone (907)772-3168

**Pam Gunther, Project Manager**  
**Parametrix, Inc.**  
5808 Lake Washington Blvd. N.E.,  
Kirkland, WA 98033

March 15, 1996

Dear Pam:

I'm taking this opportunity to comment on the D.E.I.S. for the Port Houghton/Cape Fanshaw Timber Sale Project. The following are my humble thoughts:

Our world keeps getting smaller and we should all be concerned with using our resources wisely. Although National Forest uses have traditionally been based on the "multiple-use" concept, entire forests in the Western United States have recently been closed to timber harvesting. There are many environmental groups who continue to stall, and in many cases, halt logging on Federal lands. Port Houghton/Cape Fanshaw is no different. There will be a well organized group who won't want to allow *any logging* at Port Houghton-- regardless of how thoroughly environmental protections have been designed into the D.E.I.S.

Already, the supply-side burden for forest products has been transferred from Federal forests in the Western United States to Third World Countries and Eastern Russia. Those countries *do not* have the sound timber management and ecosystem management practices that we have in the United States.

There will be long-winded comments for Port Houghton/Cape Fanshaw suggesting a "No Action" alternative because of all sorts of alleged harms to the environment, ecotourism, sport and commercial fishing, and subsistence hunting and fishing. Others will urge postponing any decision until after the release of *ITRA* draft revision. That's not a bad idea.

I have read the D.E.I.S. for this project and am commenting based on my concern for retaining a *diversified* economy and utilizing resources *wisely in S.E. Alaska*.

I think the Action Alternatives are sound and I appreciate the fact that of the actual land base involved, less than 1% will be harvested throughout the life of the project. Also, the carrying capacity for deer habitat will not be appreciably reduced. At the subsistence hearing, Joe Doerr (a wildlife biologist) testified that he believed that Moose habitat will be

Responses to Jack Slaght

34.1 Comment noted.

34.2 As clarified in the follow-up letter of 3/1/96, this comment is referring to the Revised Supplement to the Draft TLMP Revision (1996) rather than TTRA. Refer to response to comment 10.2.

34.3 Comment noted.



34.4 Refer to response to comments 13.2, 3.3, and 10.2.

enhanced by timber harvesting. I tend to agree. I have hunted many areas where I've logged in the past, and I would look forward to hunting Port Houghton after the commencement of logging.

I don't believe that logging will wipe out fish habitat in the area. Much of the harvesting will take place a mile inland from salt water. In addition, the Action Alternatives will keep timber harvesting well clear of Sandborn Canal. Also, the landscape-architect designed clearcuts are visually superior to the old style clearcuts with straight cutting lines. They will closely resemble natural clearings.

In spite of how hard Prince of Wales Island and Native Corporation lands have been logged in S.E. Alaska in the past and presently, we continue to have record salmon runs in this region! I believe the Forest Service and logging companies are doing a good job of treading lightly on the land these days.

Some people insist that tourists don't come to Alaska to see clearcuts. Maybe not. They come *in spite of* clearcuts. Tourists are ordinary folks. Some might not be thrilled to see signs of logging—but many more won't mind. It is *reality*. It's what keeps our economy *diverse*.

We could close off the Tongass to any further production of forest products(it's been done elsewhere). We could transfer more supply-side burden onto other countries I've mentioned who have *no* ecosystem management and *no* timber management plans. We could become *Isolationists* and forget our World Economy and Free-Trade agreements with the rest of the world. We could pretend this is 1878. And as long as it happens where we don't see it, we could be happy that there is very little logging nearby.

I would hope that we can have a *multiple use* forest with room for many activities, including timber harvesting. There has been some concern expressed that Ketchikan Pulp will walk away with the timber from this large sale. I would suggest that, if approved, the sale be broken up into separate offerings that would allow some large and small operators a chance to work. The local economy could greatly benefit from our local operators working their crews on the project for a couple of seasons or more. This will especially be true since the local economy is expected to really suffer from lost commercial fishing and processing revenues in the next couple of years. That will be in spite of record pink and coho salmon runs that are predicted to occur this year.

In summary, I dream of a day ahead when all Americans can take pride in how well we manage our forests for *many* uses, including timber harvesting.

Sincerely,

*Jack Slaght*  
Jack Slaght



TM  
cc: RF

Phil Janik March 15, 1996

Regional Forester

P.O. Box 21628

Juneau, AK 99802-1628

RECEIVED

19 1996

Forest Service

Juneau, Alaska

Dear Mr Janik,

I am taking the time to write today to express my concern over the Port Houghton/Cape Fenshaw timber sale outlined in a recent Draft Environmental Impact Statement.

I'm concerned that timber is given priority over other forest uses such as tourism, recreation, and fishing despite the balanced multiple use mandate of the Tongass Timber Reform Act.

Additionally I ask you to consider those studies and recommendations regarding fish and wildlife ~~as~~ as you formulate management plans for not only this but all parts of the Tongass. The studies I refer to are as you know, the Anadromous Fish Habitat Assessment and the Review of Wildlife Management and Conservation Biology. Such values although not measurable in dollars mean a lot to many Americans and should be given serious consideration.

Lastly I'm uncomfortable with the size of the sale 125,000 b.f. and the fact that it was raised from 25,000 b.f. (1993) without any public process. Is this not in compliance with NEPA or TIRA? Also the fact that the lions share of this timber is going to KPC troubles me since KPC is a firm with little to no regard for environmental regulations let alone a conscience.

over  
dense?

Responses to Chip Kogelmann

- 35.1 Refer to response to comment 13.2.  
35.2 Refer to response to comment 12.2.  
35.3 Refer to response to comment 5.1 and 3.3.



Comment noted.

35.4

I currently reside in New Hampshire but have spent and plan to spend more time in Alaska's Southeast. Just last summer I lived and worked in Juneau and Glacier Bay for 3 months. It is a wonderful part of the world and as an American with a stake in our national forests I ask you to please give the utmost consideration to the concerns I've outlined above.

Very truly yours,

Chip Kogelmann

314 Middle St #1  
Portsmouth, NH 03801  
603 431-3139



- 36.1 Comment noted.
- 36.2 Refer to response to comment 10.2.
- 36.3 Refer to response to comment 3.3.
- 36.4 Selective harvest is not limited to group selection methods. Group selection typically results in an initial harvest of 25 percent. Other selective harvest methods (such as sanitation salvage, overstory removal, shelterwood with reserves, and clearcut with reserves) result in harvests that average 50, 63, 70, and 90 percent of total unit volume, respectively, for the proposed project.

CITY OF KUPREANOF ALASKA

Post Office Box 50  
Petersburg, Alaska 99833

15 March 1996

MAR 20 1996

TO: JAMES M.F.

Abigail Kimbell  
Forest Supervisor, Stikine Area  
P.O. Box 309  
Petersburg, AK 99833

15 March 1996

The following comments are submitted on behalf of the City of Kupreanof in regards to the Port Houghton/Cape Fanshaw Timber Sale Project. While the City of Kupreanof recognizes the importance of the timber industry in our regional economy, it is vital that the industry be conducted on a scale that does not undermine the other essential components of a healthy, diversified economy in Southeast Alaska.

With the Preferred Alternative impacting over 6000 acres of wildlife habitat, we feel the scale of this project is wholly inappropriate and unnecessary to sustain a local independent timber industry. This is especially excessive in light of the other concurrently planned timber sales in our region. The Bohemia, South Lindenber, and Shamrock Timber Sales, also planned under independent sale status, are more than sufficient to satisfy the local timber industry. It is highly unlikely this sale of over 125 million board feet of old growth timber represents a scale of harvest that local, independent timber operators can bid upon.

The likelihood of Ketchikan Pulp Company becoming a successful bidder on this sale is disturbing. The monopoly status of KPC is not only unfair to small, independent timber operators, it discourages a necessary correction needed in the regional timber industry. KPC's criminal track record, from the anti-trust convictions to the criminal prosecutions relating to deliberate large-scale dumping of toxic pollutants into our air and water is outrageous. There is no excuse for overlooking or tacitly accepting this corporate negligence and disregard for the environment.

While it is encouraging to see this agency employing uneven-aged management techniques such as group-selection, 3% of over 6000 acres of clearcuts in the preferred alternative employing selective harvest is little more than token inclusion of a method of harvest vastly preferable to large-scale clearcutting. It is equally encouraging to see the use of helicopters as alternate logging systems. We would hope these alternatives are employed on a scale that makes their use meaningful in projects such as this one.

(cont.)



36.5	pg. 2	Visual resources are managed under the concept of destination-oriented recreation experience; it is the landscape setting at the destination that should be managed for scenic quality, not necessarily the aerial route traveled to get there.	36.5	Visual resources are managed under the concept of destination-oriented recreation experience; it is the landscape setting at the destination that should be managed for scenic quality, not necessarily the aerial route traveled to get there.	
36.6	In regards to Visual Resources impacted by the Preferred Alternative, it is especially puzzling how watersheds can be talked about without accounting for hundreds of commercial and private airplane flights (including tourism related "flight seeing" flights) over the project area. It is common practice to choose the North Arm of Farragut Bay as a flight corridor through Sandborn Canal and over Port Houghton. We would recommend inclusion of sight-seeing flight corridors as well as regularly scheduled daily flights when assessing impacts to visual resources of the project area.	36.6	Visual Quality Objectives (VQOs) were used in the 1995 Draft EIS to describe the change in visual quality with each alternative. The 1979 TLMF did not have adopted VQOs that required projects to meet certain levels of scenic quality. The new Forest Plan does adopt VQOs and the alternatives in the Revised DEIS are consistent with the Forest Plan.		
36.7	It is equally puzzling why Visual Quality Objectives accounting the impacts to visual resources in the project area are even applied if management activities can supersede VQOs such as what is reported in the Inner Port Houghton Environmental Consequences of the Preferred Alternative. In short, why are harvesting activities allowed to ignore the VQOs of Partial Retention for this area?	36.7	Refer to response to comment 6.2 and 10.3. Measures to protect the soils resource and streams have been developed during design of individual units, roads, and alternatives (see unit and road design cards). In addition, BMPs would be applied during harvest and road construction, and monitoring would occur to ensure that these resources are protected over both the short- and long-term.		
36.8	Considering the historic contribution of Port Houghton and Sandborn Canal to the commercial fishing industry and regional economy, why are we facing a preferred alternative that impacts 2200 acres of forest with a soil class of high potential erosion, 89 miles of logging roads which cross trout and salmon bearing streams 88 times, and 96 road acres in Soil Hazard Class III? This represents an unacceptable risk to a vital resource.	36.8	Although log rafting and barging may cause some loss of fixed commercial fishing gear, the effect is expected to be insignificant to the industry as a whole. Log tow routes from the LTFs would be in similar locations for each trip and can be avoided by commercial fishermen deploying fixed gear. We are not aware of an increased incidence of "pilfering" associated with logging camps. Logging camp residents would likely be offended by the statement. Pilfering can be a problem near any community.		
36.9	The DEIS downplays or ignores the impacts to other fisheries as well. Commercial fishermen employing fixed gear such as crab pots, shrimp pots, longline hook and line gear, stand to be displaced by log tows, which are famous for costing fisherman thousands of dollars each year in lost gear. Dungeness crab, tanner and king crab, halibut, rock fish, and spot shrimp all require fixed gear which is highly subject to damage and loss, both to log tows and tug boats as well as increased incidence of pilfering associated with logging camps. These issues must be accounted for in the FEIS.	36.9	Refer to revisions to Section 4.2.1.5 of the Revised DEIS concerning herring spawn location variability.		
36.10	Impacts to the herring resource are equally downplayed. While herring spawn sites occur in general areas, actual sites of spawn deposition have a fair degree of variability from year to year, just as herring populations have a high degree of variability from year to year. It is important to account for the disruption of future herring fishing potential such as the herring roe on kelp fishery, and the sac roe gillnet fishery.	36.10	Refer to response to comment 6.2 and 10.3.		
36.10	There is no indication this EIS process incorporates lessons of national forest mismanagement in the Pacific Northwest, with the consequent demise of a once vital and thriving commercial salmon fishing industry.				



36.11	Refer to response to comment 12.2. Also refer to revisions to Section 3.3.3.1 and 4.3.1.3, for discussion on HCAs, recently referred to as old-growth forest reserves.
36.12	Refer to response to comment 12.2. The viability of wildlife has been considered in light of the multiple-use objectives explicit in the NFMA. There is no viability concern for a species on the Tongass National Forest from the activities proposed in the Port Houghton/Cape Fanshaw project.

pg. 3

In a recent report to Congress, scientists documented twenty-four percent of the salmon runs in the Pacific Northwest are *extinct*, twenty-three percent are at "a high risk of extinction", and another twenty-five percent are either "at moderate risk", or of "special concern". What does this mean to those fishermen? A salmon drift gillnet limited entry permit can be bought for \$500.00 or less (or 1/120th the value of a southeast permit. A salmon seine permit in western Washington currently goes for \$5000.00, well under the value of a handroll permit here. There is a lesson worth learning here for commercial fishermen of Southeast Alaska.

Teams of scientists were sent to the Pacific Northwest to learn those lessons in detail, and as a result, a great deal of invaluable science was produced by the Viable Populations Committee, the PACFISH recommendations, and a report to Congress entitled "Anadromous Fish Habitat Assessment". But after going through the DEIS on Port Houghton/ Cape Fanshaw Timber sale, those lessons have been ignored. There is not one reference to the Anadromous Fish Habitat Assessment, or PACFISH in the index. The DEIS glossary refers to habitat conservation areas in the past tense! HCAs were central to the Viable Populations Committee recommendations and didn't magically go away when Alaska's Delegation pulled a fast one in the 1995 Recission Bill.

This DEIS goes on to completely ignore the serious concerns of the interagency Viable Populations Committee regarding the retention strategies in 1979 TLMP and the 1991 revised SDEIS. Those concerns clearly stated those retention strategies would lead to serious risks to the long term health and viability of wildlife on the Tongass and violate the NFMA. It is difficult to have any faith in the NEPA process when it becomes clear there is no interest in this agency to learn the mistakes of the past. The DEIS ignores the 1986 amendment to TLMP which states "All areas considered for retention must be fully displayed in the NEPA documents"....and must include:

1. Location of the respective WHMU (Wildlife Habitat Management Units) and FHMU (Fish Habitat ..)
2. Acreages contained within prospective retention areas by volume class
3. Wildlife species to be featured
4. Specific retention prescription and
5. Description of habitat values to be maintained or enhanced by managing the unit under the prescribed retention treatment.

This timber sale is too much, too fast, with too little attention paid to long term sustainable jobs in the timber industry, commercial fishing industry, and tourism industry. Sincerely,  
Dave Beebe,  
Mayor, City of Kupreanof



Responses to Roger A. Adams

- 37.1 Refer to tables 2-4 and 4-2 to obtain information on the silvicultural methods considered other than clearcutting.
- 37.2 Refer to response to comment 10.2.
- 37.3 Refer to response to comments 13.2 and 5.1.
- 37.4 Refer to response to comment 18.2.

Roger A. Adams  
7 Kennedy Drive  
Nashua, NH 03060  
March 16, 1996

Jack Ward Thomas, Chief  
United States Forest Service, USDA  
Auditors Building  
201 14th Street, S.W. at Independence Ave., S.W.  
Washington, DC 20250

Dear Sir;

As RESTORE: The North Woods, has advised me of Charles Meyers', Supervisor, the White Mountain National Forest in New Hampshire, plans to devastate the wild and scenic area north of Kearsarge Mountain by clearcutting, so has the Southeast Alaska Conservation Council advised me of Abigail Kimbell's, Forest Supervisor of the Stikine Area in the Tongass National Forest, plans to devastate, another critical Tongass roadless area by clearcutting. It will occur through the Port Houghton/Cape Fanshaw Timber Sale.

I am concerned, not only about the future of the Tongass and White Mountain National Forest, but of our entire national forests, publicly and privately owned. The Department of Agriculture must stop the timber industry from desecrating our national forests.

I have requested, in my letter to Secretary of Agriculture Dan Glickman on July 22, 1995, that the USFS must set itself up as a role model of forest and ecosystem protection, for the world. A first step in accomplishing this is to cease the practice of logging by clearcutting.

In this regard as related to the Port Houghton/Cape Fanshaw Timber Sale I request the United States Forest Service to:

- 37.2 | - Hold off on this timber sale until after the Tongass Land Management Plan has been revised.
- 37.3 | - Follow the balanced multiple use mandate of the Tongass Reform Act, get rid of the 125 MMER timber target, and adequately protect commercial fishing, recreation and other multiple uses of the area;
- 37.4 | - Delete logging units in the Sanborn Canal watershed and all lands to the east including the Salt Chuck and urge



37.5 Refer to response to comments 3.3 and 10.2.

37.6 Refer to response to comment 12.2.

- 37.5 - Offer smaller, independent timber sales to local operators over a longer period of time in the area west of Sanborn Canal, and not just offer big quick timber sales to Ketchikan Pulp;
- 37.6 - Address the concerns raised in the reports to Congress (AFHA and Peer Review)\* and adequately protect the long-term health and viability of fish and wildlife in the area.

\*Anadromous Fish Habitat Assessment and the Review of Wildlife Management and Conservation Biology (a peer review of a habitat conservation area strategy developed by Alaskan biologists to safeguard the long-term health and viability of Tongass old-growth dependent wildlife.

The scenario of the Port Houghton/Cape Fanshaw timber sale, as presented by SEACC, I suspect can be echoed across the nation. In the White Mountain National Forest of New Hampshire, this writer has personally observed:

-In 1994 the New Hampshire Timberland Owners Association (NHTOA) said that the reduction of 20 million board feet, in 1995, of timber required by the USFS's 1986 Land and Resource Management Plan for the White Mountain National Forest would "ravage parts of New Hampshire and Maine." Through political and other interventions the WMNF, USFS decreased the reduction by 8.4 million board feet in violation of the Forest Plan and without public review. (other than NHTOA). It apparently took the Forest Service about 2 months, after NHTOA's complaint, to make the change.

-The Kearsarge Mountain area in the WMNF was once proposed for wilderness designation as was Port Houghton in the Tongass.

-Old-growth dependent wildlife may be effected in the Kearsarge Mountain area (as in the Tongass) on the WMNF. It includes a rare, 100-acre grove of old-growth hemlock and northern hardwoods--possibly the largest stand of old-growth hemlock in the WMNF.

Sincerely,

*Roger A. Adams*

Roger A. Adams



- 38.1 Refer to response to comments 12.2 and 18.2.
- 38.2 Refer to response to comments 13.2, 3.3, and 5.1.
- 38.3 Refer to response to comment 10.2.
- 38.4 Refer to response to comments 5.1, 13.2, 10.2, and 3.3.
- 38.5 Refer to response to comment 12.2.

March 16, 1996

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

Dear Ms Gunter:

I am writing to express my concern regarding the Draft Environmental Impact Statement (DEIS) for the Tongass National Forest Port Houghton / Cape Fanshaw Timber Sale. I am concerned about the future of Port Houghton, and would like my comments to be considered in the planning process for timber sales in this area.

The immense natural beauty and value of this area was recognized by the U.S. Congress in 1989 when the House voted to make Port Houghton a wilderness area. Although wilderness status was never granted, the Forest Service is still responsible to protect the long-term fish and wildlife values of this outstanding area for the benefit of all its uses. This can best be achieved by deleting all logging units in the Sanborn Canal watershed and all lands to the east including the Salt Chuck. In addition, the Upper Port Houghton Area should be protected from future logging.

38.1

This sale fails to follow the balanced multiple use mandate of the Tongass Timber Reform Act by inadequately protecting the immense fishing, tourism, and recreation values of this area. This large timber sale will significantly affect the wildlife and other users of the Port Houghton area for the benefit of the Ketchikan Pulp Mill. The Forest Service should follow the multiple use mandate of the Tongass Timber Reform Act, abandon the 125 MMBF timber target, and use the DEIS process to adequately protect commercial fishing, tourism, recreation, and other multiple uses of the area.

38.2

The Tongass Land Management Plan (TLMP) will be issued soon by the Forest Service. This timber sale should be delayed until the TLMP is revised and in place, so that this sale is integral with long-term sustainable planning for the Tongass.

38.3

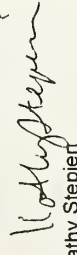
The DEIS specifies a Timber Sale of 125 million board feet for the Cape Fanshaw / Port Houghton area. There is no basis for the logging of 125 million board feet in terms of multiple use planning or ecosystem health. Instead, small independent timber sales are in the best interest of the Tongass and the multiple users of this area. By spreading the harvest out over several years, the economy is given a steady gains, while employing more people per tree, than large, quick sales to Ketchikan Pulp.

38.4

The DEIS should address the concerns raised in two Congressional Reports, Anadromous Fish Habitat Assessment and the Peer Review of Wildlife Management and Conservation Biology, in providing for the adequate long-term protection of fish and wildlife habitat.

38.5

Thank You for your consideration.

  
Kathy Stepien

Juneau, AK





## Lynn Canal Conservation, Inc.

Post Office Box 964  
Haines, Alaska 99827

### Responses to Lynn Canal Conservation, Inc.

- 39.1 Refer to response to comments 5.1 and 18.2.  
39.2 Refer to response to comments 10.2, 13.2, and 3.3.  
39.3 Refer to response to comment 12.2.

March 18, 1996

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

Dear Ms. Gunther:

On behalf of Lynn Canal Conservation, I am writing to urge the Forest Service to stop the Port Houghton timber sale as currently described.

39.1

The 125 mmbf timber target is much too large; the commercial salmon fishing, tourism, and recreational uses of the Port Houghton area are too important. Please delete logging units in the Sanborn Canal watershed and all lands to the east including the Salt Chuck to protect these important multiple uses. The upper Port Houghton area is too valuable; it must not be clearcut logged.

39.2

This timber sale should not be made until after the Tongass Land Management Plan is revised so that all multiple uses of the area are adequately addressed. When the timber sales are made, they should be offered as smaller sales to independent operators from the area west of Sanborn Canal. Large tracts of timber from this valuable forest habitat should not be sold quickly and in large chunks to the Ketchikan Pulp Company.

39.3

Important scientific information to adequately protect the long-term health of fish and wildlife populations in the Port Houghton area, as recommended in the Anadromous Fish Habitat Assessment and by the peer review, need to be addressed before timber in this area is sold.

We urge you to address these matters, maintaining the long-term health of our economy, rather than to just expedite more large swaths of timber cutting, ruining healthy forest habitat in order to feed the mouth of a large timber corporation.

Thank you for your consideration.

Sincerely,



Kaya Kirsch  
Executive Committee





40.1 Refer to response to comments 5.1, 3.3, 10.2, and 18.2.

Steve Doyle  
1946 Lincoln St. N.E. #1  
Minneapolis, MN 55418  
March 18, 1996

Abigail Kimbell  
Forest Supervisor, Stikine Area  
PO Box 309  
Petersburg, AK 99833

Dear Abigail Kimbell;

I am concerned about effects of the Port Houghton/ Cape Fanshaw timber sale on recreation, tourism, and subsistence. The 125 mmbf is far too high, sacrificing land, forests, and fisheries for the maintenance of Ketchikan Pulp Company's bankrupt monopoly contract on Tongass timber. Other uses of the timber sale area must be protected, according to the mandate provided by the Tongass Timber Reform Act of 1990. Timber sales should be small-scale, offered to independent operators over long periods of time, and not in the Sanborn Canal and Salt Chuck areas. The Upper Port Houghton Area should be preserved because of its outstanding scenery, fisheries, and wildlife values.

Thank you. I look forward to hearing from you.

Sincerely,  
*Steve Doyle*  
Steve Doyle

cc: Phil Janik, Regional Forester

Stikine Area	
MAR 25 '96	
✓	INFO ACT DATE
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	AO
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Port Houghton/Cape Fanshaw EIS

D-59

DEIS Public Comments



Responses to Clyde Winter

Refer to response to comment 3.3. All applicable TTRA regulations would be applied to the proposed project.

41.1

Refer to response to comment 5.1 and 13.2.

41.2

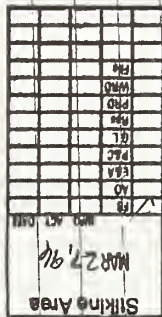
18 March 1996

AGAIL KIMBER

Forest Supervisor

P.O. Box 309

Peterborough, ON 99863



Dear Mr. Kimber:

I'm Disappointed And Annoyed To Hear That The Forest Service Is Planning On A Massive Timber Sale And Destruction Of Port Houghton, Cape Fanshawe, The Sandwich Creek Watershed & Salt Creek. I Love That Beautiful Country, And Deplore It's Removal & Handing As A Commercial Enterprise.

41.1

I Think The Forest Service Should Have The Spirit Of The Timbers Timber License Act, And Permit Other Uses Of The Timbers Forest, And Not Other These Huge Timber Sales That Only Benefit One Corporation Parents.

41.2

Please Hold Off On This Timber Sale. Set A Tree Reserve Timber Tract. Permit Other Uses & Values Of The Timbers, Including Tourism, Commercial Forest, Subsistence, & Recreation. Yours Truly,

*Clyde Winter*



42.1 Comment noted.

John R. Swanson  
3400 Edmund Blvd.  
Minneapolis, MN 55406

21 March 1996.

Tongass National Forest

900-X 309

Gettysburg, Alaska 99833

Dear Sirs:

Please accept my following comments concerning the

Port Houghton/Cape Horn Recreation Simulating

Drift Environmental Impact State ment

I wish to advise that I oppose logging in this general area.  
As logging and grading will destroy this area soil & water,  
wildlife, fish, plant, recreation, visual and aesthetics - wilderness  
resources.

I urge that all old-growth be preserved, and included in a  
National Old Growth Reservation System.

To preserve all streams and streams - corridors.

is establish a Fish Reproduction Area and Stream.

and to dedicate this area a Critical Habitat Sanctuary

with the following areas and acres, designated as

Wilderness:

Wind Ram - Port Houghton 170,000.

Spine 545,000.

Ends at 50,000.

Beats fully benefit all life, including you!

Sincerely,

John R. Swanson.

Received

APR 1 1996

Tongass N.F.



Responses to Lorraine M. Actor

43.1

Refer to response to comment 17.1, 17.5 and 30.2. The available timber in the Port Houghton/Cape Fanshaw project area can sustain logging activities for many years and logging revenues will exceed revenues from special use permit holders or other outfitter/guide activities that use Port Houghton.

43.2

Scientific forest management will ensure there are healthy productive forests for future generations to use and enjoy while meeting society's needs today for wood products and jobs. Also refer to response 13.2.

841 Pomeroy Av #21  
Santa Clara, CA 95051  
March 19, 1996

Pam Hunter  
Parametrix, Inc.  
5808 Lake Washington Blvd. NE #200  
Kirkland WA 98033

Dear Mrs Hunter;

43.1

I was dismayed to read about the plans to chop down the Tongass south of Juneau - the Port Houghton area. This is very short-sighted. Once it's gone - it's gone. That area should be protected for hunting, fishing, recreation, & subsistence. The revenue derived from these users will last far longer than the revenue from logging especially when it is a vital gateway to the totebiken Pulp Company.

43.2

There are many other good uses of Alaska's beautiful lands. I think fresh service people should be thinking more about the future than this short-term waste. What kind of legacy are we leaving to our children & grandchildren? Please consider this in that light, it is certainly important to my grandchild.

Respectfully,  
Lorraine M. Actor



*Cottrell*

**American Alpine Institute Ltd.**  
1515 12th Street • Bellingham, WA 98225

**Facsimile Cover Sheet**      **URGENT**    ☒ **YES**    ☐ **NO**

**To:** Abigail Kimball, Forest Supervisor  
Stikine Area

**From:** Sheilaigh Brown

**Phone:** (360) 671-1505

**Fax:** (360) 734-8890

**Number of Pages:** 1

**Date:** 20 March 1996

(Including this page)

**Comments:**

I understand that you are accepting public comments on a proposed timber sale in the Port Houghton and Cape Fanshaw area of the Tongass National Forest. I would like to submit my comments.

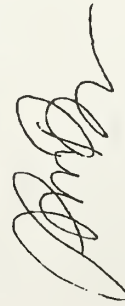
The Tongass National Forest is essential for fishers, for wildlife, subsistence lifestyles, and for tourism. People fish, crab and shrimp in those waters. Brown bear, salmon, great blue heron, river otters, goshawks and many others animals live there. These regions provide traditional harvest sites for native and non-native peoples. Tourism is vital to SE Alaska's economy.

Each of these will be irrevocably damaged with the continuing cutting of timber at the level encouraged and supported by Tongass National Forest.

I urge you to reconsider this sale, to take into account all the new data gathered by the field biologists and who are advising against this sale, to review the new TLMP material.

I recommend that you follow the mandates of the USFS and manage the forest for multi-use. This timber sale clearly precludes multi-use.

Thank you for providing me with this opportunity to comment.



RECEIVED

MAR 20 1996

**Tongass N.F.**

Responses to American Alpine Institute Ltd.

44.1      Comment noted.

44.2      Refer to response to comment 10.2, 10.3, 12.2, and 13.2.

44.3      Refer to response to comment 10.2.

44.4      Refer to response to comment 13.2.

Port Houghton/Cape Fanshaw EIS

D-63

DEIS Public Comments



Responses to Mark Kirchhoff

- 45.1 Refer to response to comment 3.3.
- 45.2 While timber markets fluctuate up and down, the cost of constructing roads always increases. Thus, deferring investment in capital improvements, like roads, could result in poorer economics of a sale in the future. If the market for timber is up at the time of a future sale, having deferred road construction probably would not be a detriment to the sale.
- 45.3 Refer to response to comments 3.3, 10.2, and 12.2. Road management objectives have been developed for some of the alternatives that include road closures to protect the mountain goat herds from conflicts with people in vehicles.

506 W Ninth Street  
Juneau, AK 99801  
20 March 96

Ms. Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

Dear Ms. Gunther:

45.1 I have the following comments about the proposed Port Houghton timber sale. First of all, I think the statement of need is bogus. Proposing to log rare old growth forest to achieve "more productive second-growth" when 95% of this country's old growth has already been logged is ridiculous. Similarly, saying that this sale is needed for "contractual needs" for Ketchikan Pulp's 50 year timber sale is also ridiculous. Port Houghton is not in KPC's primary sale area, nor is it in its contingency sale area. Let's face it - once the APC mill went down, Forest Service planners needed work and this sale was cobbled together primarily to achieve that goal.

45.2 I went to the Port Houghton open house in Juneau in early March and learned two interesting facts. First, that the ITT Rayonier employees at Hobart Bay were highly supportive of this sale because "they didn't want to have to move very far to their next job." The second thing I learned was in response to my question about the need for logging Units 24, 25, 26, 28, 30, and 31. I suggested that these units east of Sandborn Canal, which require their own TTF and road, were probably not very economical. You know what response I got from the Forest Service employee there? "Well, if we don't log these units at a loss now, we'll lose even more money logging them later."

Oh, I get it now. In the Port Houghton sale we're going to log irreplaceable old growth, using out-of-state employees, at a loss to the federal treasury, and provide timber to a mill that's currently on felony probation. I know this is going to seem like a stretch, but I don't think those are very good reasons to have a sale of this magnitude.

45.3 Contrary to what you may think by now, I am not totally opposed to having a timber sale at Port Houghton, provided that those six units east of Sandborn Canal are deleted. I would like to see the timber volume going to independent sales and Alaskan operators. I would like assurances that Sandborn Canal and all lands to the east including the Salt Chuck are left alone to protect commercial fishing, tourism, recreation, and other uses of the area. And I would like to see more protection for the isolated mountain goat populations in the area. If the Forest Service could make these compromises, I think this could turn out to be a pretty good sale.

Sincerely,

Mark Kirchhoff

cc: Abigail Kimball, Phil Janik



Comment noted. Refer to Section 4.2, 4.5 and 4.8 of the Revised DEIS for a discussion on impacts to fisheries and visual resources.

46.1

March 20, 1996

Dear Pam Houghton

I am concerned about the proposed logging of Port Houghton and Cape Fanshaw.

Port Houghton is an important commercial fishing and tourist area. It was worth designating as a Wilderness Area by the U.S. House of Representatives in their version of the 1989 Tongass Timber Reform Act. This protection was dropped in the final version of the bill. However, the fact that there is the capacity to produce a huge salmon crop - as well as the beauty to sea front nets tourist attraction suggests that clearing activities will be avoided. These activities will cause runoff into streams, harming if not destroying a viable salmon crop, & they certainly won't attract visitors.

As the Forest Service is responsible for the health of fish and wildlife, and to manage the forest to protect - long term - all of its uses - I strongly urge you to hold off this timber sale until after the Tongass Land Management Plan has been revised to follow the balanced multiple use contained in it.

Also I urge you to delete the logging units in the Sashon Creek watershed and protect the Upper Port Houghton area.

Sincerely Frances Locke

FRANKIE & LOUISE LOCKE  
2242 W LAWN AVE  
MADISON, WI 53711

46.2

46.3



7.1 Please include my cartoon in the written comment section of the Port Houghton FEIS. It represents my comments on the plan.

Thank you,

Joan Kautzer  
Joan Kautzer  
P.O. Box 129  
Pt. Baker, AK 99927



"People who now visit the area primarily because of its unmodified character may choose to recreate at subareas within the project area that are not affected by the harvest activity, or they may choose to go to other parts of the National Forest that still exhibit unmodified landscape character." (at 4-102).

#### Responses to Joan Kautzer

47.1 Refer to response to comments 13.2 and 30.3.





P.O. Box 8251 • Missoula, MT 59807  
(406) 231-2385 • FAX (406) 251-2386  
info@nfnconference.org

March 21, 1996

Pam Gunther  
Parametrix Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

I am writing to you regarding the Port Houghton-Cape Fanshaw Timber Sale as a representative of the Native Forest Network. We are an international network of forest groups and activists, indigenous peoples, conservation biologists and the general public with offices in Burlington, Vermont, Missoula, Montana and Deloraine, Tasmania, Australia. We are involved in curbing the excesses of the pulp and paper industry as well as working to protect all remaining roadless forests found on public lands in the US. We are frankly appalled by the Forest Service's latest attempt to clearcut 125 million board feet within a critical roadless area of our country's largest national forest.

Your agency's timber program not only ignores the many environmental impacts from logging activities but neglects the current economic benefits in this area from commercial fishing interests and tourism. Such a decision is inconsiderate to the people of Alaska especially in light of the fact that Ketchikan Pulp Co., a Japanese owned company, will receive all the bids. It seems to us that Alaska, suffering from a decline in its supply in oil exports, has found it necessary to export its other major natural resource -- timber!

The recent consideration to open up the Port Houghton / Cape Fanshaw roadless area for logging exemplifies the focus on multinational corporations to the exclusion of other economic forces and the general public. We do not advocate logging on public lands given what the timber industry has already done to its own lands. Until commercial logging ceases on public lands however, the Native Forest Network demands better logging practices (i.e. selective management), rewarding small sawmills who have a better track record than massive corporations, such as Ketchikan Pulp, and not using public resources to feed the international marketplace. We recommend that if some logging proceeds, that the region west of the Sanborn Canal, versus the proposed east, be sold locally to smaller independent logging contractors. The detrimental effects this sale will have on the present economy has not been considered!

If logging must be practiced, the Forest Service should wait until it revises the Tongass Land Management Plan (TLMP) before proceeding. The DEIS ignored the fact that there is substantial overlap between the two documents. The NFN urges you to the review the TLMP and manage the area for the long-term (i.e. several generations) protection of fish and wildlife, commercial and sport fishing, hunting, primitive recreation, tourism and subsistence. In particular, Sanborn Canal and Upper Port Houghton should be off limits to any logging -- period! We understand that the Forest Service is mired with financial difficulties but you cannot expect this timber sale to change that.

The roadless regions of Alaska are not commodities to be bought and sold or consumed on a large-scale. They instill in our minds the concept of vast havens home to wildlife, where humans can be humbled and left to ponder the true meaning of biological diversity. Please review existing scientific information, the Anadromous Fish Habitat Assessment and the Review of Wildlife Management and Conservation Biology, to gauge the ecological impacts of your proposed action. The critical watersheds in the Sanborn Canal and the lands to the East of the Salt Chuck and Upper Port Houghton Area distinguish themselves as unique wilderness areas. The decision to allow these lands to be handed over to an unsympathetic, uncontrolled

Printed on Kenaf Paper

## Responses to Native Forest Network

48.1 Refer to response to comment 3.3.

48.2 Refer to tables 2-4 and 4-2 to determine the various silvicultural methods proposed for units in the project area. Refer to response to comments 10.2, 3.3, and 12.2.

48.3 Refer to response to comments 10.2 and 12.2.

48.4 Refer to response to comment 12.2. Also refer to revisions to Section 3.3.3 and 4.3.1.3 for discussions on HCAs, recently referred to as old-growth forest reserves.



multinational pulp and paper company is a foolish mistake. A mistake that will leave Alaska all the more worse for the wear and tear and disrupting its presently prospering activities.

The Forest Service in Alaska has an obligation to fulfill and it is not to meeting the agency's timber base. The wildlife and people inhabiting these critical regions rely on public officials to implement environmental laws to support their coexistence. Coexistence that can be created through the implementation of government laws that the Forest Service has a hard time abiding by. This is borne out by the fact the Forest Service manipulated the already established logging restrictions, 25 MMBF vs. 125 MMBF, to appease the Alaskan congressional delegation. These actions of manipulating, neglecting and deceiving the public will no longer go unnoticed.

In the months to come, we hope that the final EIS will reflect a commitment to safeguarding the long-term integrity of Port Houghton/Cape Fanshaw roadless areas and the human communities who live in the Tongass National Forest. If this project proceeds in its current form, we will guarantee that the NFN will actively resist logging on the ground -- just ask the Nez Perce National Forest how they feel about logging in the Cove/Mallard roadless areas in Idaho.

Sincerely,

Jake Krelick  
Campaign Coordinator

Responses to Native Forest Network

48.5 Refer to response to comment 5.1.

48.6 Comment noted.



To: Pam Gunther (for your records)

Phil Janik  
Regional Forester  
PO Box 21628  
Juneau, AK 99802-1628

Dear Mr. Janik,

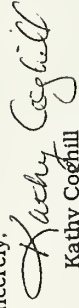
March 22, 1996

I am writing to express my concern regarding the Port Houghton timber sale. Although I am a strong supporter of a viable timber industry in southeast Alaska, there are a few points I would like to make:

- 49.1 1. The TLMP revision will be coming out soon; please post-pone this timber sale until the release of TLMP.
- 49.2 2. Offer smaller, independent timber sales to local operators over a longer period of time.
- 49.3 3. Implement the recommendations of AFHA to protect fish and their habitat.
- 49.4 4. Pay more attention to commercial fishing, tourism, recreation, and other multiple uses of the area and consider something less than the 125 MMBF timber target.
- 49.5 5. Don't log in Sanborn Canal or areas to the east including the Salt Chuck, and encourage protection of the Upper Port Houghton Area.
- 49.6 Please protect the multiple uses of the Tongass. Port Houghton is an exceptional area for fish and tourism. More people make their living this way than by working in the timber industry. Please protect all jobs by fostering a moderate harvest plan that doesn't take so much away from people who don't work for the timber industry.

Thank you for the opportunity to comment.

Sincerely,

  
Kathy Coghill  
PO Box 33863  
Juneau, AK 99803

Responses to Kathy Coghill

- |      |   |
|------|---|
| 49.1 | Refer to response to comment 10.2.                |
| 49.2 | Refer to response to comment 10.2.                |
| 49.3 | Refer to response to comment 12.2.                |
| 49.4 | Refer to response to comment 13.2.                |
| 49.5 | Refer to response to comment 3.3, 10.2, and 12.2. |
| 49.6 | Refer to response to comment 13.2                 |



March 22, 1996

Abigail Kimbell  
Forest Supervisor  
Tongass National Forest, Stikine Area  
15 - 12th Street  
Petersburg, AK 99833

Dear Ms. Kimbell:

I am submitting comments on the Draft Environmental Impact Statement (DEIS) for the Port of Houghton/Cape Fanshaw Timber harvest. After considering all the alternatives presented and the associated impacts, I would urge the Forest Service to adopt the "no action" alternative at this time. Instead of carrying out this proposal, the Forest Service should accelerate timber sales within the Ketchikan Pulp Company (KPC) operating area. In addition to sales within the KPC operating area, the release of timber scheduled for harvest under the Alaska Pulp Company Contract should meet the demand of KPC operations. The Port Houghton/Cape Fanshaw is an important recreation and wilderness area. During the debate on the Tongass Timber Reform Act (TTRA), this area was proposed for wilderness designation. Unfortunately, this designation was dropped in the final version of the bill. Any planned timber sale for this area especially of this magnitude (122 MMMBF) should be a low priority. If it becomes necessary to administer a timber sale in this area, I suggest that an alternative proposal be considered. Modify alternative C to expand timber harvesting along the North Shore, drop all units in the east Houghton area and eliminate units along the Sandborn Canal in the North Fanshaw area. This alternative takes advantage of the existing Hobart Bay road system and Log Transfer Site(LTF). Reduces the need for additional LTFs to one and reduces impacts to the Port Houghton/Cape Fanshaw area. This alternative allows the Forest Service to get some benefit out of the money paid for road development to the Goldbelt Native Corporation. The North Shore has already been heavily affected from Goldbelt logging. Making it the "sacrifice area" would limit impacts to one area and reduce fragmentation of habitats that is the result of numerous harvest units and extensive road systems.

The document has numerous conflicting statements about the value and impacts of cutting old growth timber. There are statements in support of clear cut logging and statements acknowledging the harm caused by clear cutting (see specific comments). The finalized document should be reviewed for consistency and readability. This effort was obviously the result of a compilation of several authors.

## Specific Comments

## Chapter 1

### Purpose and Need for Action

The document talks about the desired future condition of the forest as specified under the revised Tongass Land Management Plan (TLMP). The stated goal is a forest composed of a "mosaic of fast-growing second-growth timber that is interspersed with old growth . . ." This statement

## Responses to Chris Kent

**50.1** Your suggestions for considering the no-action alternative and for altering Alternative C were considered in developing the range of alternatives in the Revised DEIS. Alternative 2 in the Revised DEIS closely resembles the modified Alternative C you describe.

**50.2** Refer to revisions in Section 1.2 of the Revised DEIS.

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Port Houghton/Cape Fanshaw EIS



conflicts with assertions made later in the document. Chapter three, biodiversity section, page 3-32 states "Because of the relatively slow growth rate of trees in Southeast Alaska . . . ." This paragraph goes on to state that the return to old growth conditions can take several hundreds of years. Using the descriptive terms like fast-growing misleads the public on the value of "old-growth" and the length of time that this ecosystem type is lost. Increasingly, foresters and the public recognize that old-growth ecosystems are unique and on human lifetime reference, irreplaceable. I urge your district office to work in revising TLMP and the final version of this document to be more consistent in its application of terms. I would suggest revising this statement to "mosaic of fast-regenerating but slow maturing second-growth timber . . ."

50.3

This section also misleads the reader in implying that impacts to wildlife would be small because there would be "large blocks of old-growth forest remaining." Several studies cited in the back of the document clearly show that there is a relationship between old-growth and wildlife populations. The less old-growth, the smaller the populations of important wildlife species such as Sitka black tailed deer and Brown Bears. Recent EIS documents from timber sales on Prince of Wales and Chichagof Islands state that wildlife populations are being significantly impaired by logging activity. This document should recognize that elimination of old-growth and habitat fragmentation contributes to declines in wildlife populations.

50.4

Recreation in southeast Alaska has traditionally been by boat. Roads may attract new recreational opportunities but roads will also keep many of us that seek roadless areas away.

#### Historical Studies in the Project Area

50.5

The document says that there is a designated "utility right-of-way" in the project area made during a previous timber sale offering in the 1980's. I would like to see that this "right-of-way" is returned to National Forest status. Please reply with the necessary information on the possibility of "de-listing" this right-of way status.

#### Issues (Wildlife)

50.6

I agree with the measures of habitats listed. However, I would add that habitat quantity is one controlling factor of wildlife populations.

#### Biodiversity

50.7

While edge effect plays a role in habitat diversity, creating large areas of "edge" in temperate rainforest habitats is not as beneficial for habitat diversity and wildlife as compared with lower forty-eight conditions.

#### Fish Habitat

50.8

Roading is mention as affecting fish habitats. In analyzing the impact of roading, the document should examine the roading problems experienced at Hobart Bay. Hobart Bay soils are

There are several MIS wildlife species dependent entirely on old-growth forests during at least one season of the year such as deer, marten, and hairy woodpecker. The modeling conducted for these species indicates that wildlife dependent on old-growth conditions would decline up to 7 percent. The effect of the old-growth loss, as well as fragmentation are described under the Wildlife section of Chapter 4.

Comment noted. Refer to response to comment 30.3.

50.4

The utility right-of-way was misinterpreted. This refers to a timber sale offering of a total of 47 MMBF which includes both harvest units and roads (roads are considered as utility right-of-way).

50.5

Comment noted.

50.6

Predators associated with edge habitats are more common in the continental United States than in Southeast Alaska. As a result, the creation of edge habitats in the continental United States may result in increased predation and subsequent loss of old-growth dependent species. In Southeast Alaska, forest edges and fragmentation occur more frequently as an existing condition due to the extensive bogs, fens, and peatlands that occur throughout old-growth forests.

50.7

Scoping prior to field surveys for the proposed project acknowledged the low rock availability for the timber sale project conducted on Goldbelt, Inc. lands. The field surveys conducted for the proposed project included reporting all locations near the proposed roads where good sources of rock were located, and ensuring that the roads could be built with an adequate rock source. The roads constructed on Goldbelt, Inc. are built to different standards and guidelines than roads constructed on federal lands.

50.8



- 50.9 Revisions have been made to Section 1.7 of the Revised DEIS, which discusses permits and licenses.
- 50.10 The preferred LTF method is for a low-angle ramp and slide. The Forest Service has similar concerns and recommendations as stated in this letter.

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comparable to the study area. Roading difficulties at Hobart Bay included: poor sources of rock, unstable soils, landslides, mainline roads washed out by high water events and lack of good maintenance. The number one problem for roads at Hobart Bay was the lack of good material (rock) for road sub-grades. This may be a problem in the project area. The document should examine the added expenses and environmental consequences if similar soil and rock sources for roading are found in the project area.

#### Permits and Licenses

The document lists the Alaska Division of Governmental Coordination (ADGC) under the heading of permits. This implies that ADGC is a permitting agency. The ADGC does not issue permits or makes a determination of consistency under the Alaska Coastal Zone Management Plan. Other State agencies make this determination, including the Departments of Natural Resources, Fish and Game, and Environmental Conservation. The ADGC acts as a coordinating agency for comments and permit stipulations. This should be noted in the final document.

#### Log Transfer Sites

My concern centers on one method of log transfer mentioned, the so-called "drive down/float off." This method allows the operator the opportunity to "drive" log bundles in the water using large machinery and allows several possible log bundle transfer procedures. Under this method there are several different possible log transfer procedures: log bundles can be ferried to the end of the transfer ramp and tidal action allowed to "float" the log bundles off, log bundles could be placed successively on the ramp and machinery could push the log train in the water, or machinery could be used to introduce log bundles directly into the water. Maximizing the transfer of logs favors driving the bundles into the water by machinery. This method also aids the transfer of log bundles to the tug that moves log bundles to the rafting area. However, machinery entering the water directly or driving down the ramp creates several problems. First, machinery introduces uncontrolled discharges of pollutants such as mud and bark adhering to rubber tires, and petroleum products from overfills, leaking hoses, crankcase and grease fittings when it enters the water. These petroleum products include hydraulic fluid, diesel fuel, crankcase oil, grease and other lubricating fluids. Second, heavy machinery loaded down with log bundles will create "ruis" in the supporting material. Rock quarries in Southeast Alaska usually do not provide rock of sufficient strength and quality to bear heavy machinery and heavy loads. Ruis in the working surface in conjunction with rain and a sloping surface will quickly move mud, bark and other debris on the ramp into marine waters.

Pollutants discharged in association with movement of machinery into marine waters and increased runoff from ruis formed by heavy machinery on the transfer site do not meet State water quality standards (18 AAC 70.020) for sediment and petroleum hydrocarbons and discharge limitations in the draft NPDES permit (Section I(A)(1) a and b). A so-called drive down ramp does not represent Best Available Technology. Instead, a low angle slide (slide angle that controls entry and speed of bundles), Crane, continuous chain, or rail car method should be employed. A drive-down / float-off method of log transfer should only be considered



if the operator can assure that machinery cannot enter marine waters by installing a fail-safe system that allows log bundle transfer to occur in a manner specified in the permit. This system should be a physical modification such as a post or "stops" on the ramp preventing large machinery from moving down the ramp below the high tide line. Yet would allow entry of a smaller machine such as a backhoe or "bobcat" for ramp maintenance purposes. This type of controlled discharge engineering already applies to other end-of-the-pipe discharges. Log transfer facilities should not allow log bundle transfer to be dependent on equipment operators. Finally, ramp surfaces must be reinforced to support heavy machinery. Rock sources in Southeast Alaska usually do not provide rock of sufficient quality to support heavy equipment. Working surfaces should be reinforced with concrete blocks.

**Chapter 2**

*Development of Alternatives*

Besides complying with Section 103(e) of the Tongass Timber Reform Act (TTRA), alternatives should incorporate the findings of the 1995 Report to Congress on anadromous fish habitat assessment. This report calls for increasing buffer strip size along class I streams and better protection of water quality streams. Ignoring the results of this report and failing to improve the practices of stream protection invite further legislative activity and the outrage of citizens dependent on fishing. I urge the Forest Service to be progressive in its approach to stream buffer management.

*Salvage Areas*

The document describes treatment areas for Alaska yellow cedar. The document states that very high hazard soil areas will be avoided. This implies that high hazard soil areas will be subject to salvage. Considering the numerous slides that have occurred in the Hobart Bay area, I would encourage the Forest Service to avoid very high hazard and high hazard soil areas.

*Timber*

The decline of Alaska yellow cedar is speculated to be caused by succession to a climax community consisting of bog and muskeg. Cedar harvesting in the project area proposes to reverse that trend by causing soil disturbances and selective harvesting. Has the Forest Service proved that these techniques do in fact restore soil productivity and health of yellow cedar stands? The document provides some reasoning for experimental improvement of cedar stands but fails to provide the steps the Forest Service has taken to show that these techniques work.

The argument for improving the success of spruce regeneration is made by increasing the amount of mineral soils exposure. However, increasing mineral soil exposure comes with the price of increased sedimentation cause by soil disturbance. Habitat manipulation has a price. All aspects of benefits and potential harm should be discussed. The document expends significant effort on trying to justify clear-cut logging.

**Responses to Chris Kent**

Refer to response to comment 12.2.

In salvage areas where high hazard soils are encountered, BMPs that mitigate impacts to the soils resource would be applied. These measures include modifying the unit design to exclude areas of high mass movement potential, requiring partial- to full-suspension logging systems in areas with high mass movement potential, allowing no harvest within steep V-notch streams with high erosion potential, and implementing measures to reduce surface erosion and drainage interruption.

These techniques have not been proven to work in Southeast Alaska, rather they are currently under research and are being considered as an adaptive management approach to determine if they are effective.

Increasing minerals soil exposure would occur by allowing some blowdown to occur to unharvested trees in specific units where sedimentation is likely to be minimal. This is not a justification of clearcut logging.

50.11

50.12

50.13

50.14

50.11

50.12

50.13

50.14



- 50.15 Refer to response to comment 13.2 and 30.3.
- 50.16 This reference (Taylor 1934) is now omitted in the Revised DEIS.
- 50.17 Comment noted.

### Chapter 3

#### Roadless Areas

The document acknowledges that the project area has significant wilderness recreational potential. It also states that "roadless character . . . is not uncommon in Southeast Alaska." Many of us that have lived in Southeast Alaska have seen our favorite hunting areas become clearcuts, or developments in areas that used be primitive. The rate in which roadless areas are being converted to "roaded areas" is increasing at an alarming rate. I find it objectionable that the document treats roadless areas so lightly. The tourism and recreation industry depends on areas such as the Port Houghton/Cape Fanshaw area for their economic survivability.

50.15

### Chapter 4

#### Forest Productivity and Health

There are several debatable notions in this "justifying" section. However, I must take exception to the statement that "volume of spruce in even-aged stands 75 to 100 years after harvest is about 50 percent compared with 28 percent in existing mature stands." The document has already stated several times that clearcuts in Southeast Alaska favor Hemlock over Spruce because of soil productivity, shade effect, and affected by the lack of exposed mineral soil. To use these figures as real world numbers is not supportable. The reference cited is dated 1934. I suggested that section be rewritten to be consistent with what is said earlier in the document and additional study be done to learn the validity of this 1934 citation.

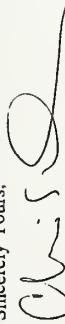
50.16

### Conclusions

The Forest Service should defer this proposed project. The "No Action" alternative should be adopted to protect this important recreational area and habitats. Thank you for considering my comments on this matter. I look forward to the record of decision for this project.

50.17

Sincerely Yours,



Chris Kent  
P.O. Box 20571  
Juneau, AK 99802-02571



51.1 Refer to response to comments 10.2, 5.1, 13.2, 12.2, and 3.3.

# FAX COVER SHEET

Forest Supervisor (Sitka Area) Date: 3-23-96  
TO: Abigail Kimball  
(907) 772-5895 c.c.: Regional Forester Phil Janik  
FROM: Jeff and Susan Sloss Fax # 586-7840  
740 5th St  
Juneau AK 99801

Phone and Fax: (907) 586-4275

Message: Dear Ms. Kimball,  
We urge the FS to delay the Port Houghton timber sale until after the LMP has been revised. The FS must abide by the TTRA, drop the 125 MM timber target and protect the other values: fishing, tourism, recreation, etc. Sanborn Canal watershed and lands eastward including the Salt Creek as well as upper Port Houghton should all be protected from logging. Smaller independent timber sales to local operators over a longer time period should be offered, not just huge short term sales to Ketchikan pulp. Please address the concerns raised in the AFHA + Peer review reports to congress. Thanks, Jeff Sloss Ann Sloss

51.1



- 52.1 Refer to response to comment 5.3.  
 52.2 Refer to response to comment 12.2.  
 52.3 Refer to response to comment 13.2 and 30.3.  
 52.4 Comment noted. Also refer to response to comments 3.3, 10.2, and 17.1.

Abigail Kimbell  
 Forest Supervisor  
 Stikine Area  
 P.O. Box 309  
 Petersburg, AK 99833

Pam Gunther  
 Parametrix  
 5808 Lake Washington, NE  
 Suite 200  
 Kirkland, WA 98033

RE: Draft Environmental Impact Statement  
 Port Houghton/Cape Fanshaw Timber Sale Comments

## 52.1

Port Houghton, an unroaded area to date, is a gem. Indeed, in 1989, the US House of Representatives designated it as a Wilderness area in its version of the Tongass Timber Reform Act. Though this was dropped after political compromise, the Forest Service still has a responsibility to protect the long term health of fish & wildlife in the area and to manage the area for the benefit of all its users, including those of commercial & sport fishing, hunting, tourism, recreation, & subsistence. Sanborn Canal & Upper Port Houghton should not be logged.

## 52.2

The Forest Service should address the concerns raised in two recent reports to Congress, the Anadromous Fish Habitat Assessment and the Review of Wildlife Management & Conservation Biology. Both reports found existing protections to fish & wildlife habitat to be inadequate.

## 52.3

The area is an important fishing ground. It is well known for its crab, herring, and salmon streams. Tourism opportunities are also plentiful. It offers visitors with great hiking & wildlife viewing possibilities. Many tour operators use the area as well as independent travellers such as myself. The rate at which such pristine areas are being developed is alarming. This sale would have severe impacts to the other users of the Tongass National Forest.

## 52.4

After considering the alternatives presented and the associated impacts, I urge the Forest Service to adopt the "no action" alternative at this time. I believe that this timber sale should be postponed until after the Tongass Land Management Plan has been revised. The Forest Service should offer smaller independent timber sales to local operators over a longer period of time in the area west of Sanborn Canal, and not just offer big timber sales to the Pulp Company in Ketchikan, the site that the Alaska Department of Environmental Conservation ranks as the second most contaminated place in Alaska.

I. Alexakos  
 325 Fourth St  
 Juneau, AK 99801



**Erik Lie-Nielsen**

Post Office Box 1471, PETERSBURG, ALASKA 99333

March 23, 1996

Abigail Kimbell  
Forest Supervisor  
PO Box 309  
Petersburg, Alaska 99833

Re: Port Houghton/Cape Fanshaw Timber Sale Project

Dear Ms Kimbell:

My concerns in the subject sale project are as follows:

1. Your cover letter of December 7, 1995 instructs one to send comment to Pam Gunther of Parametrix, Inc., Kirkland, Washington. I question the usefulness of this action as I attended your public hearing on Mar. 5, 1996 in Petersburg, Alaska in which it was brought out that comments and data previously submitted had been ignored, edited or not used by Parametrix, Inc. and consequently incomplete and misleading data are the basis for your Draft Environmental Impact Statement. Specific examples are:

A. Fish survey data from summer months only were utilized, ignoring any data from the rest of the year. Indeed, apparently NO attempt was made to obtain or use the additional data, or to use available historical data;

B. Information submitted at previous meetings by the public was ignored, specifically, information concerning Snake River tagged fish;

C. The information contained in the Anadromous Fish Habitat Assessment was ignored and the data apparently not included in the assessment;

D. A very incomplete data base was utilized to assess the impact of the sale on the tourism industry - only "licensed" guides were approached for information and the rest of the industry was totally ignored. Licensed guides account for only a fraction of the total tourist industry.

2. "Significant" restriction of subsistence use of game (deer) is a "significant" possibility according to your letter. I would maintain that based on the history of clear cutting, it is inevitable.

3. This sale appears to be rushed through to prevent it from falling under the guidelines of the new Tongass Land Management Plan, promised but not yet complete. It is ridiculous to promulgate sales under a plan made in 1979, a

Responses to Erik Lie-Nielsen

- 53.1 ADF&G supplied commercial fish harvest data when the resource reports and 1995 Draft EIS were being prepared. This information concerns annual catch, and is not limited to the summer months. Since the 1995 Draft EIS was published, ADF&G supplied additional data in 1996 and 1997. The objective for the 1994 fisheries and water resources surveys in the project area was to evaluate existing fish habitat and water quality, not to quantify fish populations in the vicinity of the project area.
- 53.2 Three species of endangered salmon from the continental United States occur in Southeast Alaskan waters. These species include the Snake River fall chinook tagged fish. This species is listed as threatened, and feeds in offshore (high seas) waters of Southeast Alaska. The tagged hatchery fish that was identified off of Cape Fanshaw likely represents the movements of native stocks. The NMFS acknowledges that these fish may occur in offshore waters near the outer coast of Cape Fanshaw but the agency did not list this species as a threatened or endangered species that could be affected by the proposed project. This is why the species was not listed in Chapter 3 under Threatened and Endangered Species. This species feeds on herring and other small fish, and is considered highly migratory in deep offshore waters beyond the project area. It generally does not feed on any one herring stock more than three days, and is not believed to be affected by proposed timber sales.
- 53.3 Refer to response to comment 12.2.
- 53.4 Refer to revisions to Section 3.7 of the Revised DEIS for information on recreationists contacted and their responses for the EIS.
- 53.5 Through analysis of recent hunting trends, review of the subsistence hearings for the project, and the level of subsistence use; it has been determined that the project alternatives would not cause a significant restriction for any subsistence resource. Refer to Section 4.6.4 of the Revised DEIS.
- 53.6 Refer to response to comment 10.2.



53.7

A review of forest practices in relation to fisheries resources was conducted in the Report to Congress Anadromous Fish Habitat Assessment. Recommendations in this report were adopted in the 1997 Tongass Land and Resource Management Plan. Refer to response to comment 12.2.

53.8

Refer to response to comment 17.1.

Page Two

plan for which all the stated needs and purposes being in the interest of the timber industry, with no regard for other sectors of the Southeast Alaska economy, or recreational needs. This leads me to suspect that the sale is at least in part, politically motivated, a factor which bodes extremely ill for the future viability of our forest resources.

53.7

4. The US Forest Service ignores its own historical data going back for many years, of the results on the environment from similar treatment of the forests in the Pacific Northwest, and where the populations of some species has "crashed", where the environment has degraded to the point where it can no longer support viable fish and wildlife populations. The results of the misguided use of our forests has meant widespread disaster in those areas to the timber industry, to the fishing industry and to other livelihoods dependent on a viable and healthy forest ecology. The detrimental consequences to the overall quality of life in the Pacific Northwest I do not believe has even begun to be assessed. I can not see it as a wise or even a benign neutral policy to pursue these actions in what is left of the Tongass National Forest. To ignore your own data when it is in conflict with a political agenda is a very serious mistake for which the US Forest Service and the politicians involved, will most certainly be called to account for in months and years to come.

53.8

5. That Ketchikan Pulp Corporation, a convicted corporate felon and polluter of the environment even be considered for the timber harvest is abominable. A company which has defaulted on its contract should not be allowed to enjoy any further benefits from harvests of the public resource, especially under terms of an arrangement made nearly 50 years ago. The costs to our environment already incurred as a result of this company's greedy misuse of our resource has not even begun to be measured and assessed.

In summary, I believe that your proposed sale is an erroneous use of our forest resource, politically motivated, and ignores potential detrimental environmental consequences. I believe that ANY potential sale at least await the publication of the new Tongass Land Management Plan so that the very expensively gained information there may be used to help determining the future of our forest.

Very Sincerely,

  
Erik Lie-Nielsen

CC: Gary A. Morrison; San Tad Stevens; San Frank Murkowski;  
Rep. Don Young



FAX - To: PAMELA GUNTHER Pg. 1 of 2  
 FAX # 206-889-8808  
 From: Tom Paul, Juneau, Alaska  
 907-463-3214

Responses to Tom Paul

- 54.1 The interdisciplinary team tried to develop alternatives that would not dominate the unique features of the project area. These special features were identified as early in the EIS process as possible, and a unit and road pool was developed that avoided the areas used most frequently by recreationists, commercial fishers, and subsistence users; as well as areas most susceptible to environmental damage.
- 54.2 If roads were to be spread out over the entire project area, then a unit and road pool would have been developed that has roads and units in South Fanshaw, east of Glen Creek, around the Salt Chuck, and entirely along the North Shore of Port Houghton. Neither the unit and road pool or any alternative has this objective. No alternative in the Revised DEIS proposes units in Sandborn Canal or east of the Sandborn Canal. Mitigation measures to minimize impacts to deer and goats are also included in the alternatives.

24 March 1996

Pamela Gunther  
 Parametrix, Inc.

Dear Ms. Gunther,

In regard to the Port Houghton timber sale DEIS: You have been given plenty of information from a number of sources on how the ridiculously excessive proposed level of timber harvest is likely to adversely affect the wildlife, recreation, fisheries, and visual values of the Port Houghton area. I will not add to them. The comments you collected at scoping don't appear to have affected the design of alternatives. My comments will avoid the technical and be limited to the personal.

Port Houghton is one of my favorite places in southeast Alaska and it bothers me that so little attention in the EIS or in the planning process has been paid to how the logging plans will change it; not just the "resource outputs", but the character of this, up to now, wild place. This is typical of all timber sales and designed to make logging appear to be the best of all resource uses. Of course, even this sort of deck-stacking doesn't always succeed. Some sales are so poorly conceived nothing can make them look good. This sale has plenty of ugly features. The planning team both inside and out of the Forest Service are unlikely to notice them, however. They, and the Forest Supervisors, who will make the decision on Port Houghton, can seemingly only focus on the numbers, the outputs, the commodities, the market values. They have no sense of the place. The Supervisors have probably never set eyes on it or walked through the forest they plan to dismember. To all of you it seems to be just a place under contract, or a source for timber to meet the annual target (important for promotion), or a technical challenge to overcome.

I do not like any of the proposed alternatives. All the proposed alternatives seem designed to spread the effects of the logging as far as possible across the countryside. Like graffiti

Port Houghton/Cape Fanshaw EIS

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DEIS Public Comments



Responses to Tom Paul

54.3 Your comments were considered in developing the range of alternatives in the Revised DEIS.

"artists", timber sale planners seem to like to have their handiwork widespread. Heaven forbid a grove of "overmature" old-growth forest escape the stand improvement techniques of the silvicultural experts. I have no other explanation for the fact that every alternative proposes either the visual trashing of Sandborn Canal or the same treatment for watersheds east of it in inner Port Houghton. There seems to be absolutely no appreciation for the outstanding scenic qualities of those places or that an unlogged landscape has value. The Forest Service is clearly willing to trash the scenic values of the inner bay and Sandborn and risk the goat and deer populations of Fanshaw peninsula to meet an unsuitably high timber target that satisfies the demands of a corporate felon. Logging has a place in southeast Alaska, but after living here for 20 years and paying close attention to scores of timber sales, I despair of ever finding a sale that takes more than timber values into consideration in its design. The only one I have seen that comes close is the Campbell Sale of a couple of years ago.

To the Forest Supervisors: Show me you have some understanding and appreciation for the wild countryside you are about to "manage", to use a favorite Forest Service euphemism. Come up with a ROD alternative that 1) stays out of the Sandborn Canal drainage and watershed, 2) avoids logging of any kind east of Sandborn Canal, 3) actively closes and "puts to bed" all roads in the rest of the project area to protect the mountain goats of Dahlgren Peak and Tangent-Saranac Peaks, 4) prohibits Forest Service personnel, their agents, and contractors from using government vehicles and boats for fishing or hunting, 5) protects deer winter range on west and south-facing slopes in the East Fork of Negro Creek and Roberts Island Creek and water quality and fisheries everywhere in the project area, 6) uses more helicopter logging and fewer roads than shown in the present alternatives to protect mountain goats, 7) substantially reduces the number of acres and board feet of timber to be cut.

You could do it if you really wanted to.

Thanks for the opportunity to comment.

Sincerely,



Tom Paul  
525 W. 9<sup>th</sup> St.  
Juneau, Alaska 99801

cc: Abigail Kimball  
Gary Morrison



*Port Houghton User's Group*  
6087 Thane Road  
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Gary Morrison, Area Supervisor  
U.S.D.A. Forest Service - Chatham Area  
204 Signaka Way  
Sitka, AK 99835

Abigail R. Kimball, Area Supervisor  
U.S.D.A. Forest Service - Stikine Area  
Box 309  
Petersburg, AK 99833

March 24, 1996

**RE: Port Houghton/Cape Fanshaw DEIS**

Dear Supervisors Morrison and Kimball:

Please accept the Port Houghton User's Group's comments regarding the Port Houghton/Cape Fanshaw draft environmental impact statement. The Port Houghton User's Group is a loose-knit coalition of individuals and businesses who rely on the unimpacted fish, wildlife and natural beauty of Port Houghton for some portion of their livelihood. As fishermen, charter boat operators and hunting guides, the members of the Port Houghton User's Group share a number of common concerns that will be outlined in detail in these comments.

Our primary concern lies with inevitable detrimental effects of the levels of logging proposed in the DEIS alternatives. As frequent users of the area we will be personally confronted with the impacts to the fish, wildlife and scenic resources. And, these impacts will undoubtedly jeopardize any future revenues from Port Houghton. In a nutshell, the capacity of Port Houghton to support a multiple use economy after the logging of the proposed 125 MMBF is seriously at question. The DEIS fails to adequately discuss the loss of economic diversity at Port Houghton that will result from the elimination of more than a half dozen tourism charter business from the area. Nor does the DEIS fully discuss the potential losses to the salmon, herring, and bottom fisheries that will result from both direct and indirect effects of such industrial-scale logging in this untouched and pristine area.

Port Houghton is a very special place. The United States Congress noted this reality in 1989 during the struggle to pass the Tongass Timber Reform Act. The U.S. House of Representatives voted to add Port Houghton to the nation's wilderness system, but was unsuccessful in including it in the final version of the Reform Act. It was with good reason that the House took the actions that it did. Port Houghton is tremendously rich. Port Houghton is home to one of the largest intact blocks of high-volume old growth forest still standing on the north Tongass, home to a large number of very productive salmon streams, home to herring runs supporting a strong and diverse population of marine mammals and home to a diversity of economic interests supporting individuals and business from four surrounding communities.

55.1

55.2

Responses to Port Houghton User's Group

55.1

The charter businesses that currently conduct business in the Port Houghton area are currently taking tourists into an area with views of the Goldbelt, Inc. harvest at North Shore. Although the tour operators have historically used Port Houghton for a wilderness type of hunting experience, these operators have no priority status over other future users. The tour operators have the option of conducting their business at other areas within the Tongass National Forest that are designated as wilderness. Results from the EIS fisheries analysis do not predict a loss of commercial salmon, herring, and bottom fishing opportunities or catch success from the proposed harvest in the project area. The unit and road pool, alternatives, and mitigation measures were developed to avoid this type of loss. We have no reason to believe that the tourism charter business would be eliminated from the project area. Refer to the Chapter 4 section on Recreation.

55.2

The area considered by the U.S. House of Representatives included Sandborn Canal and eastward, including the Salt Chuck. None of the alternatives in the Revised DEIS propose timber harvest in these areas.

Port Houghton/Cape Fanshaw EIS

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DEIS Public Comments



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Responses to Port Houghton User's Group

Refer to response to comments 5.3 and 13.2.

Vessel operation in the waters of Southeast Alaska is governed by the International Rules for Navigation. Fishing boats actively fishing have the right-of-way over a tug boat towing a raft of logs.

Primary Concerns

1. Maintain the integrity of existing economic uses.

Port Houghton is quickly becoming the next Point Adolphus when it comes to whale watching charters. The area's abundant fish runs and complex currents generate tremendous feed for both humpbacks and Orcas. While the humpback population both in and just outside of Port Houghton greatly exceeds that of the Orca, it is very common for a charter visit to be entertained by both species of whales for long periods of time. Charter use of Port Houghton has increased up to 400% in the last three years for some local businesses (i.e. *Wilderness Swift Charters* of Juneau).

The average visitor to Southeast Alaska and the Tongass has little or no interest in seeing clearcuts. True, one cannot deny their existence, but when a "wilderness experience" is being sold, the paying guest expects a wilderness experience. While most visitors still greatly enjoy their trip, many do admit to being adversely impacted.<sup>1</sup> In an industry where "word of mouth" is possibly the most powerful form of marketing currently supporting Southeast's small tourism businesses, any "adverse impacts" transmitted in this manner can be detrimental to the industry as a whole.

At 4-102 the DEIS acknowledges the impacts that this sale will have upon recreationists and visual quality, suggesting that "people who now visit the area primarily because of its unmodified character may...choose to go to other parts of the National Forest that still exhibit unmodified landscape character." Such a statement is an all too honest slap-in-the-face to the charter industry and is indicative of the forces and priorities driving this timber sale process.

In recent years, Port Houghton has provided a substantial portion of the commercial salmon catch in northern Southeast Alaska. Additionally, Port Houghton is heavily worked for its numerous herring and crab. Port Houghton's diverse fisheries are healthy enough to provide work for the industry throughout the calendar year. The DEIS at 2-29 states that "Commercial fisheries would be temporarily displaced while barges move through Port Houghton." Such "displacement" must be avoided. No barges should move through Port Houghton during any commercial fishing opener, be it seining for salmon or herring, or potting for crab. I have personally heard the concern of crabbers in Petersburg regarding the likelihood of their gear being torn out by timber barges and the dragging of log rafts. Please detail in the final EIS what measures the logging contractor will be required take to avoid any adverse interactions between log moving operations and commercial fishing activities. The Port Houghton User's Group recommends a detailed barge travel schedule that at no time overlaps the schedules of the area's fishing fleet.

<sup>1</sup>Based on personal experience of six years of backcountry guiding of seakayak and canoe trips on the north Tongass.



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**Responses to Port Houghton User's Group**

55.5 Refer to response to comment 3.3, 10.2, and 12.2.

55.6 Refer to Section 4.9.3 in the Revised DEIS for a review of unit acreage on high hazard soils. No units or roads occur on very high hazard soils. Appropriate BMPs will be applied to units on high hazard soils to prevent mass wasting. Information on utility volume has been added to Chapter 2 of the Revised DEIS. Regarding the AFHA recommendations, refer to response to comment 12.2.

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**2. Avoid logging Sanborn Canal, the Sanborn Creek watershed and all lands to the east.**

That portion of Port Houghton from Sanborn Canal east is, outside of the whale-watching waters, the next most important destination at Port Houghton for charter tourism use. Sanborn Canal is the anchorage of choice as it is nearly wind-free in any condition of weather. From here, access to the spectacular Salt Chuck is straightforward, offering a true wilderness experience, replete with towering cliff sides, intact standing old growth forest, glimpses of the Presidential Range and the abundant wildlife of the upper Salt Chuck.

The preferred alternative proposes to cut six units totaling nine MMBF on the east side of Sanborn Canal. The Port Houghton User's Group must offer our strongest objection to the presence of these units, numbers 341118, 398119, 398120, 398121, 398122, 398123. I strongly recommend that these six units and their minimal volume either be removed from the sale volume altogether or be relocated to the north shore of Port Houghton, adjacent to the already heavily-impacted Goldbelt, Inc. lands. Parametrix has informed me that the Forest Service has the intention of an independent sale for these units. While this is good news for the independent sale program, it turns a deaf ear to the requests of the charter operators who depend on the pristine wildness of the Salt Chuck and its entrance channel through the North Arm of Port Houghton. Please, we are not asking for much -- avoid any and all logging east of Sanborn Canal. The north shore of Port Houghton seems an ideal place for an independent sale.

The Port Houghton User's Group is pleased that the preferred alternative avoids logging in the Sanborn Canal and Creek watershed. This valuable anchorage, salmon producing stream and crab rearing area is just too precious to foul with the sediments, erosional deposits and visual scars that are unavoidable consequences of widespread clearcut logging.

**3. Provide ample protection for salmon streams on northern Cape Fanshaw**

The Forest Service's January 1995 Anadromous Fish Habitat Assessment recommends that "new management direction be developed and applied to minimize long-term downstream impacts" by providing increased protections on headwater areas as well as on steep slopes, high-hazard soils, and class III and class IV streams. (AFHA at 11) It is very apparent that there are numerous units, nearly three dozen, that either straddle or are laid out adjacent to class III streams on northern Cape Fanshaw. Robert Island Creek has nine units on or near class III tributaries; the three forks of Negro Creek have eight units on or near class III tributaries; Haystack Creek has four units on or near class III tributaries; Placer Creek has three units on or near class III tributaries; Walter Creek has five units on or near class III tributaries; and there are a handful of these hazardous units on unnamed creeks that drain to Port Houghton's southern shore.

Taken alone, any one of these streams does not produce a record-breaking number of salmon. Taken together, these streams provide the spawning and rearing grounds for a tremendous population of salmon. Damage to these watersheds through impairment of water quality by failing to provide any measure of



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Responses to Port Houghton User's Group

55.7

The decision of how to move harvested logs to the mills is determined by the purchaser of the sale who is required to abide by existing laws and regulations. The Forest Service provides the opportunity for an LTF site that can be permitted. In review of the study conducted by Buchanan et al. (1976), bark toxicities to marine animals does occur, however, the question concerns the amount of bark needed for toxicity to occur. Buchanan et al. (1976) state that toxicity is likely minimized in areas where good flushing occurs and would be greatest in areas where deposition is greatest with minimal flushing. The LTF sites in Port Houghton were selected based on physical observations that flushing does occur. Other sites, such as Farragut Bay North Arm, were not carried further as potential LTF sites because of expected poor flushing rates. In addition, bark deposition is expected to be low (refer to Section 4.2.1.2 in the Revised DEIS). Regulatory agencies impose threshold limits on bark accumulation levels as a condition of permits. When accumulations exceed a threshold level of a thickness greater than 3.9 in. at any point below the LTF site and have a 100 percent coverage exceeding 1 acre in size, cleanup actions may be required.

55.8

During the scoping meetings in fall, 1994, only the proposed action was presented. Alternatives were developed following review of the comments received during scoping. Regardless, new alternatives are presented in the Revised DEIS that analyze a broad range of volume.

protection to their class III stretches of water must be avoided at all costs. The economic consequences of the loss of productivity of these waters is too high a price to pay. The DEIS at 4-58 states that, "No more than 11 percent of any watershed is proposed for timber harvest on high potential erosion soils under any alternative." Conversely, the DEIS at 4-59 states that all alternatives avoid both timber harvest and road construction on class IV slopes. Furthermore, according to the unit card summary tables, there are nearly two dozen units that rate high for mass fail risk. These hazard areas must be avoided, either through complete elimination of the units themselves or by restricting the logging in each of these units to avoid the hazardous soil areas.

4. Utilize barge transfer versus LTF's and floating log rafts

The Port Houghton User's Group agrees with the preference given in Appendix K for "onshore log storage and the placement of logs directly onto a barge from land." Floating log storage and the movement of log tows is of great concern to the crab fleet that works the waters of Port Houghton. The DEIS is null and void in its discussion of log raft movement over the duration of logging at Port Houghton. Additionally, the DEIS is sorely lacking in a thorough discussion of the well-documented effects of bark leachate on juvenile crab and salmon species. Please disclose in the final EIS those measures that will be taken to: 1. Avoid costly gear damage to the crab fleet from the movement of log barges; 2. Implement onshore log storage and barge transfer, and 3. Reduce the potential for poisoning of juvenile crab and salmon from both bark deposition and onshore bark leachates entering salt water.

Buchanan, Tate and Moring performed extensive studies on the effects of bark leachates on marine invertebrate and salmonid species and report that, "Sitka spruce bark extracts were found to be toxic to adult and larval pink shrimp and larval Dungeness crab. Sitka spruce and western hemlock bark extracts were found to be toxic to pink salmon fry."<sup>2</sup>

General Concerns

The following general concerns are intended to provide a rationale for the above detailed primary concerns. The specific problems with the Port Houghton/Cape Fanshaw timber sale found by the Port Houghton User's Group exist primarily because of the deceptive, exclusionary and incomplete nature of the scoping process, the mysterious inflation of the timber sale volume from that originally published in the guiding Forest Service planning documents and the persistent dominance of the Ketchikan Pulp Company on the Tongass timber program.

Scoping

55.8 During the Parametrix scoping tour of the fall of 1994, there was overwhelming public surprise at the

<sup>2</sup> See Buchanan, Moring and Tate, "Acute Toxicities of Spruce and Hemlock Bark Extracts to some Estuarine Organisms in Southeast Alaska," Journal of Fish. Res. Board, vol. 33, 1976, pps. 1188-1192.



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**Responses to Port Houghton User's Group**

Refer to comment 5.1 and 13.2. Note that there is no requirement that differences among timber sale alternatives must be centered on timber volume. The range of alternatives in the 1995 Draft EIS was based on impact differences among resources, harvest location, type of logging, extent of road miles, and proposed mitigation measures. Potential impacts of alternatives are usually proportional to the amount of timber harvested. By focusing alternatives around a narrow range of volume, differences between alternatives provide the decision maker with better information to minimize environmental impacts in the selected alternative. Analyzing alternatives with a broad range of volume prevents meaningful comparison of impacts from avoiding certain areas, using alternative silvicultural methods, using different logging systems, and incorporating specific mitigation measures. Alternatives in the Revised DEIS analyze a broader range of volume.

If an alternative does not meet the project need, it can be eliminated from detailed study. This is true for any NEPA EIS.

extremely detailed timber sale alternatives presented. Much of this surprise was directed at the specific timber volumes that each alternative sought to cut and the associated extremely narrow range of volumes that covered the five alternatives. "Scoping," people questioned? "It appears that this sale is far past that stage."

Both the DEIS and the posing of direct questions to Forest Service representatives at scoping meetings failed to provide any reasonable explanation for the existence of the very specific timber target range of 110-125 MMBF. How can such target volumes be arrived at prior to the incorporation of information obtained through the scoping process? What does this say to the public about the value of the scoping process, the value of public input, and the chances for meaningful public comment to actually be incorporated into the final alternatives?

At the recent open house meeting held in Juneau on March 7, I put these questions to your project leader, Pamela Gunther. She explained to me that the National Environmental Policy Act (NEPA) required an agency to know that any given project must be feasible and its goals achievable before going to the public with that project. Hence, the need for detailed alternatives, specific timber volumes and detailed field work prior to actual scoping meetings. Even if such a statement is true, and after a thorough review of NEPA and no uncovering of such an agency directive, I continue to question Ms. Gunther's answer. The Forest Service must provide explanation in the FEIS as to how it arrived at a volume of 122 MMBF. Just because the volume exists on the ground and, given enough time and subsidized taxpayer moneys it may be loggable, is no justification whatsoever.

Formation of predetermined narrow timber volume ranges must end at once. I reiterate my comment made during the scoping phase of this predetermined logging project - although the Forest Service can identify timber production as a "purpose" of a proposed project, the amount, location and manner of logging must be consistent with Section 101 of the Tongass Timber Reform Act (TTRA), which provides that the Forest Service shall seek to meet market demand for timber only "to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources." 16 U.S.C. Sec. 539d(a). This can in no way, shape, or form be interpreted as justification for a specific target range of volumes from a timber sale. A predetermined range of target volumes, especially the narrow, single-use preference ranges that we so often see today on most all Forest Service timber sales, completely removes any possibility of incorporating new information into timber sale planning.

I am appalled to read the DEIS at 2-5 and 2-6 in the section titled Alternatives Considered but Eliminated from Detailed Study. Seemingly in direct violation of the above quoted language from the TTRA, the DEIS reads, "An alternative was initially considered that would result in no units and roads being seen...from the water. This was...determined not possible based on a minimum timber harvest requirement of 110 MMBF." Such a statement is a loud and clear timber-first directive that slams the door on multiple use and goes straight to the heart of one of the biggest problems now existing with the Tongass timber sale program.

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Port Houghton/Cape Fanshaw EIS

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DEIS Public Comments



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Refer to response to comment 5.1.

55.11

During the fall months the Port Houghton User's Group fully intended to draft our own timber sale alternative. Due to a number of personal situations, this goal was never achieved. In discussing the formation of this "public" alternative with Petersburg District Ranger Patty Grantham, members of the User's Group were told that any alternative we would develop must meet the specific timber target presented during scoping. If our alternative could not provide at least 110 MMBF, it could not be considered.

Please provide a thorough explanation in the FEIS as to how and why the Forest Service is so locked into its volume ranges that it must jeopardize the economic rights and opportunities of other area users.

## 2. Timber Sale Volume

In the 1985/1986 Amendment to the 1979 Tongass Land Management Plan, the two agency documents that guide current management of the Tongass, the target volume for Port Houghton, from six VCU's, is 25 MMBF. Today, the volume being prepared is nearly five times larger. How can this possibly be? Under what guidance is the Forest Service acting in order to change its management directives by a factor of five, without first receiving public approval and the legal authority to make such a gross deviation from its management plans? Please provide a detailed explanation as to how and why and per what legal basis the Forest Service is superseding its management directives and increasing the size of timber sales to this degree without any public process.

In Supervisor Kimball's response of December 15, 1995 to my earlier letter of October 30, 1995, the following explanation of was offered. The letter reads: "There was a sale planned in this area in the early '80's, but the area involved in that sale was only a fraction of what is involved in the current project area; that is the reason the volume for this project is larger than that individual sale." How simple! The Forest Service decided to expand the sale area, so logically it must also expand the sale volume! Unfortunately, this justification for a fivefold expansion of the sale volume does little to put me at ease and is a bogus explanation for an illegal and behind-closed doors abuse of the public's right to participate in resource planning on our nation's largest national forest.

I urge you to provide a more intelligent and meaningful explanation of this situation in the FEIS.

Thank you for considering these comments.

  
Andy Pomanoff

cc. Pam Gunther



Responses to Michael Medalen

- |      |   |
|------|---|
| 56.1 | Refer to response to comment 55.9.  |
| 56.2 | Refer to response to comment 5.1.   |
| 56.3 | Refer to response to comment 3.3.   |
| 56.4 | A total of 13 anchorage sites have been identified on Forest Service maps for the project area (Appendix I). This information does not show anchorages at any of the LTF sites considered in the 1995 Draft EIS nor the Revised DEIS. The best anchorage along the south shore of Port Houghton is in Sandborn Canal, where no activities are proposed under any alternative. |

Michael Medalen  
Box 969  
Petersburg, AK 99833  
3/24/96

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd. N.E. Suite 200  
Kirkland, Wa. 98033

Sirs;

I am a long time user of Port Houghton as a commercial fisherman, recreationist, and subsistence hunter. Having reviewed the Port Houghton DEIS I am once again appalled at the inconsiderate incompetence displayed by the US Forest Service and their minions in regard to the public interests. Some things one never gets used to.

I must oppose the narrow range of volume alternatives. There is no reasonable range of alternatives for the public to review. While the Forest Service has never chosen an alternative that has cut less than the maximum volume they can get away with by fair means or foul (quite generally foul in my experiences with them) there should be alternatives that a person can comment favorably on who opposes the rape and pillage timber harvest the Forest Service favors and yet believes there should be a reasonable amount of timber harvested.

The stated purpose and need of logging 110-125 mmbf was determined outside the public process. While I understand the lure of bypassing the public in the decision making that most affects them as a citizen I am sensitive about having my rights as a citizen ignored.

I must protest the inflation of suitable available acres in project area over what the current TUMP 1985-86 says. I also must protest the inflation of the 25 mmbf target as per current TUMP to 122 mmbf net of sawlogs. How much is the planned volume of utility logs? It's bad enough that volumes projected to be logged in the long range plans are too high for a sustained long term harvest but when even those numbers are inflated it is nothing short of criminal.

Speaking of criminals, I oppose selling any Port Houghton volume to KPC as part of their long term contract. Besides the fact that they have a record (literally) of ignoring the public's health and safety, I don't want an expansion of their contract area into the area where I live. I've seen what the Forest Service let them do to Prince of Wales Island and I don't want it here.

I am concerned over the loss of anchorages this sale will entail. There shouldn't be more than one LTF in an "anchorage poor" area such as the south shore of Port Houghton. There aren't many good

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Responses to Michael Medalen

- 56.5 Refer to response to comment 2.2.
- 56.6 Discussion of fishing, subsistence, and recreation resources within and affected by the proposed project is provided in Chapters 3 and 4 of the EIS.
- 56.7 The new Forest Plan did precipitate the need for this Revised DEIS.
- 56.8 Refer to response to comment 12.2.
- 56.9 Harvest in Hazard Class IV soils has been avoided, and harvest in Hazard Class III soils has been minimized (refer to Section 4.9.3). BMPs will be applied to areas where the soils resource requires additional protective measures.
- 56.10 All of the alternatives analyzed in the Revised DEIS meet the VQOs adopted in the new Forest Plan.
- 56.11 Roads constructed for the purpose of timber harvest are exempt from the Section 401 and/or 404 ACOE permitting process. Any recreational use of these roads is incidental to the purpose of road construction. The design of these roads has no consideration for recreational uses.
- 56.12 The ADF&G determines hunting regulations.

- 56.5 anchorages for a southeast blow and even fewer for a northerly. I also believe that any sale over 1 mmbf should require the use of barges. It would be understandable for the purchaser of a small sale to have a need to raft his logs but, considering the value of a large sale, there is no reason why 20th century transportation methods should not be used.
- 56.6 Besides the fact that public scoping done following sale layouts violates NEPA it also precludes the full inclusion of public concerns about anchorages and a myriad of other concerns in a final plan. I want you to complete necessary studies to accurately assess fishing, subsistence, and recreational uses of area and issue a supplemental DEIS that reflects the interests of the involved public and incorporates their concerns.
- 56.7 A supplemental DEIS is a must anyway following completion of the TMP revision so it shouldn't be too much trouble to just do a proper job of it next time.
- 56.8 A proper planning job would incorporate the recommendations of the AFHA and also incorporate VIAOPS and peer review recommendations in a supplemental DEIS and carry those recommendations through to completion of the sale.
- 56.9 All cutting units and roads on all high hazard soils should be removed due to risks of massive failures. Problems of slides in other areas in the Tongass, particularly Prince of Wales Island, have resulted in damage to salmon runs and the death of at least one man.
- 56.10 Removal of cutting units and roads that exceed VQOs for the project area is a must.
- 56.11 The public must be given a guarantee that money is set aside to remove culverts and bridges to close roads on wetlands that don't have the proper Army Corps of Engineer permits required for roads used for purposes other than logging after the sale is completed.
- 56.12 As a subsistence user I want it written in the sale contract that no hunting be allowed in the sale area by anyone employed on the sale by the purchaser or the Forest Service for the duration of the sale.

Sincerely,

*Michael Medalen*  
Michael Medalen



Pam Gunther  
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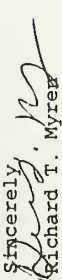
REF: Port Houghton DEIS

Dear Ms Gunther:

As per our conversation I was surprised that the FAX from the Southeast Alaska Conservation Council (SEACC) which I attempted to send March 25 was not received by the time I called you on the 26th. I had left the SEACC office late in the afternoon and the person sending it was having trouble making the connection but he said he would continue after I left. I still do not know if you received it via FAX. In the meantime I had sent a two day mail of a draft of the criticism on the 25th. I assume you have that now at least.

As you can see it needed more editing. I received the draft-EIS document only a few days earlier and the time simply did not allow the work necessary. Anyway, I have edited our response which has not changed our criticism though I added further documentation of our claims contained in the initial draft.

I guess the reason for some of these excuses other than my own failures is the short response time from when I first heard of the sale, the delay between my requesting a copy of the draft (receiving it--the Petersburg office got it to me within three days which was certainly quick enough, however) and my reading it. There should be more time allotted for responses.

Sincerely,  
  
Richard T. Myren  
Chairman, Juneau Group of the Sierra Club  
3320 Fritz Cove Road  
Juneau, Ak 99801  
March 30, 1996

enclosures

cc:SEACC

file sierra53



Note	
	Enclosures with this letter are references and several articles which are included in the planning record.
57.1	The effects of the proposed timber sale are described in Chapter 4 of the EIS.
57.2	The EIS analysis assumes all Goldbelt, Inc. land in the project area has been harvested as the existing condition. Refer to the first page of Chapter 3.
57.3	Logging practices that occurred during the 1960's discussed in Enclosure #1) are no longer conducted. For this project, a minimum of 100 ft. buffer (or "leave" strips) as required by TIRA occur along every Class I or II stream that borders a unit. In many situations, the Class I/II buffer strips were more than 125 ft. from streams. Under the new Forest Plan, Class III streams also have buffers. In addition, specialized logging techniques that minimize effects to these buffers would be implemented where needed.

Port Houghton and Cape Fanshaw Timber Sale, DEIS December 1995.

Introduction

In a recent lecture, Dr. Fred Everest, of Forest Science Laboratory in Juneau, praised the superlative salmon environment of world class proportions containing all five species of the Pacific salmon centered in southeast Alaska. The Alexander Archipelago, a narrow band of land and temperate rainforest one hundred miles in breadth to four hundred miles, north to south, nestled between high mountains rising on the east and bathed by an extension of the Japanese current of the Pacific Ocean to the west, contains over two thousand salmon producing streams and forms a cradle for the extant racial diversification of the species. Recent and rapid extinction of salmon races in the Pacific Northwest, and elsewhere, summons special attention: southeast Alaska is a resource of biological distinction, singularly remarkable and found no where else in the world. It has not been given a respectful position and status by American forestry nor recognized appropriately by the U. S. Forest Service in the past for its exceptional position in the world.<sup>1</sup>

A reading of the draft EIS-Port Houghton and Cape Fanshaw Timber sale Project, December 1995 (HODEIS) suggests the potential for serious environmental degradation of fishery resources in the sale area by logging. But after discussing the potential effects no attempt is made to evaluate it, even crudely so. This is very disappointing. Does the Forest Service believe that it can now sell timber and violate the requirement of NEPA in not identifying effects of the proposed actions as imperfect as such identification and analysis might be? Is the Forest Service going to carry this mode of action to the extreme and not be able to say anything certain or quantitatively until after a two or more 100 year-rotations? It has already, since the 1950s, and large scale logging, have had a period nearly one half of a century to make observations!

Has the Forest Service recognized the sale area in which no logging has yet taken place is bordering and near heavily logged private lands for which certain environmental changes are certain to adversely affect fish habitat and that comparisons of the unlogged land of the proposed sale area with the logged lands could yield needed and extensive insights into logging effects upon the fish resources affected by logging?

Background

Understanding effects of logging have a long history and it should not have to be reviewed here. Why should you be reminded of what I know you know and understand. Effects of logging on salmon have been studied in Alaska since the early 1950s. Biological studies of southeast Alaska salmon have gone back

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into the 1930s and before. There is much data on salmon, and though some of the interpretation of it is suspect (Enclosure #1)' in some studies at Hollis, there are other studies, including Hollis studies and data which are reliable. Further studies in British Columbia and in the Pacific Northwest and California add to the wealth of knowledge. Several compendiums of studies show extensive studies over the years. In addition to studies themselves there is hard evidence of effects emerging, such as we are now witnessing in the collapse of the salmon fisheries in the contiguous United States, from the east and to the west coast (Enclosure #2), all of it. So when I pick up a draft-ERS such as the present one I become highly disturbed and somewhat suspicious and wonder if history is again repeating itself. The integrity of the Jack Ward Thomas's Forest Service is above reproach, but I feel that RODEIS is not confronting the issues nor maintaining the high standards of the Thomas Administration, indeed, it might violate NEPA.

The recent documentation of the need for leave-strips and the studies showing the potential loss of rearing and spawning habitat of streams without proper organic inputs and bank protection as stream systems readjust was a subject of a lecture last winter by Dr. Fred Everest of the Forest Service Science Laboratory. A similar description of this problem was sent to Governor Knowles in March 1995 (Enclosure # 3). I call your attention in the Enclosure #3 (pages 1-3) of disasters waiting to happen. We can do something about it.

The National Forest Management Act of 1976 created a committee of scientists which were to study leave strips and report to Congress. They did in 1979 and their recommendation published in the Federal Register (Vol. 44, No. 88, p. 26625),

. . . we concur with the Task Forces's recommendation that the width of this strip be 30 meters, but emphasize that this is a wholly arbitrary value, proposed solely for administrative value."

This arbitrary recommendation of width without substantive studies became law in Alaska in the Tongass Timber Reform Act of 1991, and it was easy to see why. The U.S. Forest Service in Alaska didn't want it. John Sandor, the Regional Forest at the time of passage of MMFA went to Washington D.C. with draft of the first Forest Service Area Guide' which told Congress that the Forest Service was doing every thing right assuring them fish productivity would be maintained even increased (Enclosure # 3, page 11). Testifying to Congress,

. . a point has been made that we should have mandatory leave strips on the salmon streams of southeastern Alaska. Research has



shown that this would be unwise. Salmon runs have declined on both streams that have been logged, and those that have not been logged. Research has shown that the trees left in leave strips particularly Sitka spruce and western hemlock, are shallow rooted and would likely windthrow . . ."

And the opposition continued into the 1980s. In 1983 Regional Forester Barton, who replaced Sandor, cited" (1) the Forest Service continued to measure the effect of logging on single streams by the size of the regional commercial catch and (2) argued the Forest Service was protecting fish resources and enhancing them. That, though seeming to mark a significant change in the Forest Service position, was a deception. No specific reference to leave strips was made. Barton stated,

[Riparian vegetation is important hut] . . . it makes little difference whether this vegetation is old-growth, second-growth or planted . . ." (Text in brackets and underlining added for explanation and emphasis inserted.)

Protection of fish habitat did not recognize leave strips because cutting to the stream bank in fact was allowed of all trees greater than one foot in diameter!'

And the myth that the forest was being protected by the Forest Service continued to be perpetrated. A "New Perspectives" and a new ecology approach came from the Forest Service pens, while even drawing famous Dr. James Burke of British TV acclaim and science historian to give a dialogue in film "Schedadzu"--an interestingly down-grading and subtly omitting the a major role logging played in the demise of the PNW salmon of how things were going too well in the PNW with a heavy emphasis on effects of dams of course, going to the very edge of credibility of not offending forestry, that is not properly planning forestry also as a partner in the destruction--there are no dams on coastal rivers and they too have declining salmon stock, a subject Dr. Burke was probably unaware of as he read his script. Then appears David Gibbons, of the U. S. Forest Service in Alaska at the hase of the ramp to the Juneau boat harbor stating,

. . . when the commercial harvest declined in the mid 70s people got worried. There were two problems. First they were simply catching too many salmon. And secondly, there was a problem with the habitat that the salmon were using. . . the Forest Service attacked the habitat problems. And . . commercial fishermen . . helped build hatcheries and also work on habitat problems. Through these . . efforts it appears we have solved our salmon management



problems in Alaska. Three out of the last five years have been a record harvest, with a record harvest of 140 million in 1985. We are lucky we caught this problem in time since we were going down the same path as the Pacific North West." (Italics and underlining added for emphasis.)

Exactly what has the FS accomplished, is it the hatcheries or the work on habitat or both. Well it is neither, and there is no evidence things are any better than as they were in the last 100 years or today relative to assuring a stable salmon production. Since Gibbons none are so brazen as to make such a idiotic, scientifically unsound statement measuring logging effects upon salmon production. The runs were in fact better off before any forestry ever appeared in southeast Alaska.

A proposal with considerable biological standing of PACFISH, namely a minimum width of 250 feet is not to be disregarded in view of the past intentions of the Forest Service.

But even the 30 meter "arbitrary" recommendation was probably biased downward to increase the adverse effect upon salmon. One of the committee of scientists was a Dr. William Webb who had written a paper for the 1973 Nixon Commission Report.<sup>10</sup> The Nixon Commission upped cutting the remaining old-growth forest using solely for Alaska the information from Alaska provided through the three paper troika of Sheridan and McNeil (1968) and the Meehan et al., (1969) publications, with the deletion of Salo (1967), discussed and discredited (See enclosure # 1, pages 1-4) and elsewhere. The Webb paper,

. . . There is a temptation to interpret all obvious signs of habitat destruction as deleterious to fish populations. However, all habitat changes do not result in declining populations. In several recent studies it has been shown that salmon populations increased in streams flowing through logged watersheds over a several year period following completion of the logging. Sheridan and McNeil (1968) found an increase in salmon spawners and salmon fry during a 7-year period after logging in two streams in southern Alaska. They believed some of these increases may have been due to changes in the streams not related to the logging operations. However, populations were not drastically reduced in spite of the fact that there was temporary increase in turbidity and sedimentation."

But Dr. Webb was helpful in establishing what both Sheridan and McNeil were so busy attempting to deny and that was the Forest Service tie between how



logging effects looked as measured by escapement populations by citing a earlier paper<sup>11</sup> appearing before Sheridan and McNeil (1968). With the senior author, Bill Sheridan, it reported with excruciating truth that visual estimates of escapements before and after logging were believed sufficient and used to detect logging effects, sufficient even to write a paper about it. So to speak such methods, which had been employed since the beginning of time--so to speak,

. . . Sheridan, Weisberger and Wilson (1965) studied 12 salmon streams in Alaska that had been visited immediately after completion of logging operations 14 years earlier,<sup>12</sup> and concluded that none of the 12 streams was producing fewer fish than before the logging took place. In one stream logging had apparently increased stability and productivity by channeling the water and making bottom materials more stable."

Dr. Wehb and the Commission had received and knew about the abundance information that protection of the fishery from logging was not adequate in southeast Alaska, yet he produced such a uncritical statement of effects!

So from the beginning adequate leave-strips were not being given a fair treatment in the U.S. Forest Service.

When we hack off from our attracting attention to ourselves and power, such as the present proposal which goes or match only the awesome forces of natural disasters of Nature in terms of permanent alteration of the environment, in fact we are not doing much better than our ancestors, and perhaps worse. In the case of some species man co-evolved with them and they became a prey which could sustain and evolve as the predator, man, evolved. In the case of fish and forestry, as well as fishing technology, there is no co-evolution, the predator is evolving while the prey remains static, indeed, is becoming weakened through destruction of the gene pool in hatchery technology. We are actually little ahead of the Maori when they arrived on New Zealand and plundered and eventually exterminated the dodo birds and other megafauna. Our automobiles, and boats, electronic gear are just as lethal if not more so than the spears of the Maori. We fool ourselves as being civilized. We are an arrogant and ignorant species self-centered beyond any respectable animal in the animal kingdom. The antics and foolery of high paid bureaucrats, before high equally paid politicians listening to them is a recipe for disaster. If there is any sense in all of this it has got to be found before it is too late.

The facts are, and were, that the Forest Service did not care about the fishery resources and, in addition to its public relations campaign telling



57.4	Pages 3-45 or 4-45 of the 1995 DEIS did not discuss rainfall. We did not understand this comment.
57.5	The units upstream of Goldbelt, Inc. lands do not border Class I streams, only three units are near Class II streams, and most units are only near Class III streams. In all cases, streams have been protected by no-cut buffers in accordance with Forest Plan standards and guidelines. No significant cumulative adverse effects are expected from harvesting units on the North Shore of Port Houghton.
57.6	The term embeddedness has been added to the Glossary of the EIS. Timber harvest activities were generally avoided in Watershed 341 (which is the Sandborn Canal) in the Revised DEIS. The 1995 DEIS did state that the lower tributaries drain relatively unstable slopes that have naturally high rates of erosion and sedimentation.
57.7	Refer to response to comment 57.3.
57.8	Habitat capability models are discussed in the Wildlife section of Chapters 3 and 4.

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the public the opposite, it went into the scientific literature and corrupted that where it could (Enclosure # 1).

With this background then what is one to make of proposals to cut into previously uncut and roaded watersheds described in the proposal?

#### Criticism of HODEIS

P. 3-45, last paragraph, hydrology. (Will there be 160 inches a year, what is it during the summer months?)

57.4

P. 3-49. The effects of corporate logging downstream with Forest Service helicopter logging upstream will confound effects and a bad idea to log above corporate lands. That is to say, if stream damage and deterioration occurs due to logging it cannot be attributed to another party. Sources of effects should be kept simple, and two kinds of logging, under two different systems just complicates understanding effects which are difficult enough to determine initially, without complications.

57.5

#### P. 3-54

The largest and most important fish producer of the sale area watershed 341 of 17,291 acres (P. 3-53) does not receive the discussion of the sediment and erosion problems discussed for the other watersheds; but with embeddedness (P. 3-54, 2nd para. in which the term is not defined in the glossary) of 60% it sounds to me that there is a very serious problem of sedimentation facing the Forest Service on the largest fish producing watershed of the sale area!

57.6

In summary of the pages. 3-42 to 3-56 Fish and Water Quality it is amazing that logging is proposed when stream stability and/or embeddedness is so openly discussed (For example, P. 3-50, WS #321; P. 3-51, WS #331; P. 3-52, WS #332; P. 3-53, WS #333; ) and then when we get to Lower Sandborn River (P. 3-54) the "most productive stream in the project area" there is no discussion of sediment, embeddedness and erosion! I return to what the initial Area plan stated, productivity would be protected. I will remind you that promise was made when there were not leave strips. Now that you have 100 foot leave strips are you going to tell us that they are adequate and the problem is solved when in fact there is much evidence they should be wider.

57.7

It appears therefore by omission of existing sound evidence, data and techniques a case is made that HODEIS has not been able to evaluate potential adverse logging effects in the sale area! This is clear because it has not attempted to evaluate such effects, employing, for example, Habitat Capability Effect models (see Upper Carroil Timber Sale, draft-EIS, January 1986, or more

57.8

Port Houghton/Cape Fanshaw EIS



Responses to Richard T. Myren

- 57.9 Impacts to fisheries resources are discussed in Section 4.5, impacts to marine resources and commercial fisheries are discussed in Section 4.2.
- 57.10 Enclosure #4 discusses "Schedadaxw" and refers to stream restoration plans at Kennek Creek, Alaska. For the most up-to-date measurement of effects to streams from logging practices in Southeast Alaska, refer to the 1995 Anadromous Fish Habitat Assessment report to Congress (AFHA report). Recommendations in the AFHA report for improving fish habitat protection were adopted by the new Forest Plan. No significant adverse effects to fish habitat are expected with the Port Houghton/Cape Fanshaw timber sale project.
- 57.11 The reference to Meehan et al. (1969) has been dropped in the Revised DEIS. However, the reference to Bartos (1989) has been kept since it is a more recent study. We would need additional critique on this study to remove the reference.

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subjective appraisals, which at least prioritize the most damaging effects. What has happened between the writing of the recent Upper Carroll Timber Sale draft-EIS and HODEIS? After omitting the use of models HODEIS apparently wants the reader to believe:

... No method has yet been developed that can universally quantify effects of hydrology and water quality changes in freshwater streams on the number of salmon successfully hatched and reared." (P. 4-78)

Because there may be no method that can universally quantify effects does that mean the EIS process is exempt from attempting to quantify those effects that are known, certainly imperfectly, and for which some information is available? The Forest Service has simply failed in its mandate, while pointing out serious potential sediment problems to its credit (Table 4-20, pgs 4-56, 4-78), I might add, but failing to evaluate the evidence they present, and have gone ahead with the timber sale anyway. This is like looking at a red stop light, ignoring it, and proceeding recklessly through the intersection hetting there will be no pedestrians or vehicles in the way!

Much of the public, in my opinion, for the past two decades since the first TLUMP of the U.S. Forest Service has been left with the impression that logging would not adversely affect salmon production. In fact, the original TLUMP suggested salmon production could be increased (Enclosure # 4).<sup>13</sup> At the time many of us knew that the Forest Service could not honestly make such statements.<sup>14</sup> Then we learn it is possible to quantify the effects in the Upper Carroll Timber Sale DEIS, then we learn in HODEIS that there still is no way of knowing what the quantitative effects of logging upon fish resources are! Indeed, in those two decades when we knew there was no basis of the TLUMP statement and the Forest Service still, in fact, can't quantify effects of logging on the number of salmon hatched and reared in freshwater and the original promise apparently still remains broken, and after two decades in which study was supposed to follow that promise. It is clear the effect of logging upon the survival of salmon and trout will be skirted again. Will we be told again what the above quotation states? When is the Forest Service going to face up to the issue? If it is true that effects of logging can not be satisfactorily quantified, then it is certainly time, indeed, past time, that they do.

Page 4-50, Hydrology  
There is a new study to be published in Water Resource Journal about flood effects following cutting by Julia Jones at Corvallis, Oregon. The reference to Meehan's work is suspect because of the problems which editor of Forest Service literature has with the truth. (I have several times over the past

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Refer to Tongass National Forest Annual Monitoring and Evaluation Reports for discussions of the effectiveness of stream protection measures. The Forest Service recognizes the importance of collecting comparison data from control areas and during preharvest conditions. Monitoring is planned in the project area as described in Appendix E.

two decades discredited the Meehan et al., (1969) publication.<sup>13</sup> (Myren, 1972<sup>14</sup>; Myren, 1974<sup>17</sup>; Pella and Myren, 1974<sup>18</sup>; Myren, 1975<sup>20</sup>; Myren, 1976<sup>21</sup>). Meehan et al., admit one of the few places in their highly edited publications where they did tell the truth that their equipment was not refined enough to detect small changes in streamflow (see Discussion in Meehan et al., p. 37.

The reference to Bartos on the same page should be checked out with Bartos, though he is retired. I did not agree before his retirement with the way the Forest Service had interpreted his statements, as I recall.

#### Recommendation

There is only one answer to the apparent void in responsibility particularly shown in the HODEIS, and that is, believe it or not, and after all of these years and if the premise of HODEIS is right then there is still an absence of critical information. Obviously more hard biological information of the response of fish to the environment is needed. So gather it. And we suggest the solution of gathering such information and to solving the problem of quantifying of logging effects: make comparisons between two, relatively contingent, sufficient large areas each with many watersheds but one subjected to extensive clearcutting, and the other uncut. These two proposed comparison areas must contain similar estuarine and upland microclimate, contain the same kinds of geology and stream systems. Such a plan would remove the common quantitative problem of intractable measurement insensitivity of many statistical designs for fish stream comparisons where within stream population variability hides the effects between the experimental and control streams because the relatively large sample sizes of the experimental and control comparison areas contain many watersheds and streams.

This approach is different from the Hollis studies, the only definitive study in southeast Alaska which initially attempted to get at the evidence of stream sedimentation and its effects upon eggs and larvae in a comparison of a before and after logging setting. Those studies only partially lived up to the initial proposals and the interpretations were in some cases wrong, and from which their effect is still adversely impacting our perception of logging effects upon pink and chum salmon. The Hollis studies studied in three streams (Harris River, Twelvemile Creek and Indian Creek) in detail and erroneously "measured" supposed effects against a background of population changes subject to effects outside the study area, i.e., the variation due to the ocean environment upon "local" population sizes.

The proposed study takes a different tact by eliminating the population sampling problem through using many streams and comparisons of the output of those streams to the output from corporate lands. "Macro" or emergent property comparisons are used to judge effects, e.g., an overflight and



The timber harvest ongoing on Goldbelt, Inc. lands is private, and may not be available for study uses. In addition, the methods used for harvesting timber on private lands are not directly comparable to methods used on federal lands. State regulations for timber harvest on private land are much less restrictive than Forest Plan standards and guidelines that apply to the Port Houghton/Cape Fanshaw timber sale project. Refer to response to comment 57.5.

57.13

Comment noted.

57.14

comparison of stream sedimentation as judged aerially between the logging areas and the control area (proposed sale area). The contrasts would lead to more reductive comparisons. Such an approach is uniquely appropriate for the study area where extensive clearcut logging will be complete by 1977. It is a made to order set of circumstances which hears much consideration before its potential value is discarded, if it is.

The sale area under federal control just happened, of course, to be adjoining and near to a privately owned area extensively clearcut and monitored by the State of Alaska, and is nevertheless ideally suited for the comparisons. Indeed, the private industry could provide the U. S. Forest Service a perfect study area at no cost assuming they would permit federal monitoring on their lands! Possible comparisons may be tailored to certain meteorological events, such as floods, periods of high population abundances, or to other detailed questions which may be asked such as sediment regimes. In addition to studies designed for specific objectives other uses come to immediately to mind. For example, when major rainstorms and rain-on-snow events of major floods occur (p. 4-50 of HODEIS) the two sample areas may be immediately compared. I have predicted in enclosure # 3 pages 1 and 2 the dire consequences. We must know about such events and how they will impact the future for fish, as well as humans. Damage to stream channels following large floods on cut over lands is expected (See Enclosure #3, the Prediction).

#### Further Information and Justification

It is clear that State of Alaska funding as well as Federal funds may decrease over the future according to recent trends and currently demonstrated with reduced funding proposed for both the Department of Fish and Game and Natural Resources an impairment of monitoring existing logging effects on State, private as well as Federal lands. It would be unwise to permanently close this avenue to potential vital information for the health of southeast Alaska salmon and trout resources by a premature ill conceived logging in one of the few locations in southeast Alaska were such comparisons may be made.

To HODEIS credit the potential change in ocean currents and the multiple-decadal cycle related to fish abundance (p. 4-77) suggests reduction in fish production may be expected in southeast Alaska soon. The mistakes in management are likely to appear through the background variation during this period. The information obtained from the control and experimental watersheds of the recommendation may reveal important information about the sources of variation in commercial catches, efficacy of hatchery production and the effect of cutting policies.

#### References

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57.14





## Sitka Conservation Society

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March 25, 1996

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The following comments are submitted on behalf of Sitka Conservation Society for the Port Houghton/ Cape Fanshaw Timber Sale Draft EIS.

The Port Houghton sale is of concern to Sitka Conservation Society (SCS) due to its potential for seriously degrading an area on which local residents rely for their livelihoods as well as for sport, recreation and subsistence needs. The currently unroaded Port Houghton area is an important fishing ground for the Petersburg fleet and has a long-established commercial fishing history of longlining (halibut, cod, rockfish, etc.) shrimp, crabbing (dungeness, king, bairdi tanner), herring baitfish seining, and a commercial dive fishery for sea cucumbers in addition to its notorious rich salmon stocks. Producing hundreds of thousands of fish, Port Houghton is unequivocally valuable for commercial fishing and also for the rapidly growing tourism industry, both of which generate high income and employment for residents. If not so extensively logged Port Houghton can continue to provide these long term, lucrative jobs.

SCS protests the illegalities of the Port Houghton sale process, namely that field layout was done prior to public scoping input and the timber volume to be offered was expanded by the Forest Service above what TLMP allows. Original target timber volume to be logged from Port Houghton was 25MMBF, as per TLMP 1985-86. The Port Houghton DEIS currently claims a target volume of 122 MMBF, and no figures are presented to support available/suitable acres for the sale. Not only is this volume expanded above what TLMP allows, but the USFS 5-year projected timber offerings for this area indicate that actually an even higher volume, 154 MMBF, is intended to be extracted. Such planning via predetermined, inflated volume objectives does not allow the Forest Service to adequately provide for multiple uses of the area, including its important existing tourism and commercial fishing uses. DEIS Alternatives should reflect the 25MMBF indicated in the TLMP for this area rather than an expanded volume.

58.1

### Responses to Sitka Conservation Society

58.1

Note that the regulations of the NEPA Section 1501.7 Scoping state that scoping should occur when the impacts of a particular action are confined to specific sites. Units and roads were identified at scoping meetings to inform the public where specific sites would be located for the project. Field work was required to confirm these unit and road locations. Field reconnaissance is essential to comply with NEPA. Field reconnaissance provides the site-specific information to ensure that various components of the project are feasible, that appropriate mitigation is designed into those components, and that resource information used for the effects analysis is accurate. Final layout is a more detailed effort that occurs once a decision to implement a particular alternative has been made. Also refer to response to comments 5.1 and 13.2. The 154 MMBF refers to net sawlog plus utility whereas the EIS reports volume as net sawlog. For a comparison between the two figures, refer to the timber volume statistic tables in Appendix A.

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Working to conserve the natural environment of the Tongass Forest and to protect Sitka's quality of life.

Received 3-26-96 12:15 pm by the Society

(SCS-PI)



<p><b>58.2</b></p>	<p>The DEIS incorrectly indicates that “the TLMP schedules timber sale preparation for all management areas in the project area” (DEIS 1-1) and fails to note that the current volume was expanded well above the area identified for logging in the 85-86 TLMP. As the Forest Service has proposed this expanded volume requirement outside of the public process, the Purpose and Need statement for the Port Houghton sale becomes arbitrary and capricious. The environmental analysis for this sale was contracted with Parametrix prior to cancellation of the Alaska Pulp Corporation (APC) long-term contract, and the proposed timber volume requirements were originally intended to satisfy APCs now defunct contract. Following Forest Service cancellation of the APC contract, target volume was not decreased accordingly. (See Schedule of Proposed Actions, October 1, 1994 Chatham Area, Supervisors Office). The Forest Service instead shifted the target volume, in an apparent closed door process, to satisfy contract commitments for Ketchikan Pulp Company (KPC).</p>
<p><b>58.3</b></p>	<p>Refer to response to comments 58.1, 55.9, and 53.5. The Tongass Land and Resource Management Plan does not require a public “mid-level” scheduling process. It is not apparent how the 1995 Draft EIS could have evaluated an alternative less restrictive than the no-action alternative in meeting the intent of ANILCA Section 810. Regardless, the Revised DEIS evaluates a broader range of alternatives and under no alternative is a subsistence restriction expected.</p>
<p><b>58.4</b></p>	<p>Refer to response to comments 3.3 and 13.2.</p>
<p><b>58.5</b></p>	<p>Refer to response to comments 3.3 and 10.2. Operations at the KPC mill, as well as other mills, are covered by other environmental laws and/or permits under the jurisdiction of other agencies. Timber from this project was not expected to contribute significantly to effects at the KPC mill, if any of the volume did indeed go there. Since the KPC pulp mill is closed, it is not apparent whether any of the timber will end up in Ketchikan for processing. Regardless of where timber is processed, communities in Southeast Alaska are benefitted by the distribution of 25 percent of the timber sale receipts.</p>

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58.6 Page 1-15 of the Port Houghton DEIS incorrectly claims that according to the 1995 Recession Bill the Forest Service is prohibited from implementing Habitat Conservation Areas (HCAs) in the sale area. The Senate Recession Bill expired at the end of the Fiscal Year 1995 and is no longer in effect. In the Scoping Report for the Port Houghton/Cape Fanshaw Sale (p.16) the US Fish & Wildlife Service recommends HCAs protecting the watersheds of both Sandborn Canal and the Salt Chuck. The Forest Service should implement HCAs in the project area, and allow no logging units or roads in the HCA areas originally proposed by the Interagency Committee and by the recommendations of the peer review for that study.

58.7 In the February 1995 Scoping Report for The Port Houghton/Cape Fanshaw sale the US Fish & Wildlife Service comments that Sandborn Canal (and the Salt Chuck) is used for foraging by marbled murrelets and cautions against disturbing the surrounding habitat. In the same document the Alaska Department of Fish & Game states "We strongly oppose any timber harvest in this drainage [Sandborn watershed] and would like to see several alternatives developed which avoid logging there".

58.8 Whether the Forest Service has followed through on adequately protecting these watersheds is nearly obscured by the poor presentation of watershed boundaries for public assessment. Instead of indicating watershed boundaries on a separate map as in the current DEIS (Figure 3-4), all watershed boundaries for the project area should be clearly indicated on EACH Alternative Map in order to accurately evaluate placement of prospective harvest units. Despite the current misleading presentation, it is clear that when watershed boundaries are properly imposed on Alternative B, C and D maps the Harvest Units 30, 123, 138, and 143 indicate prospective logging directly in the Sandborn Canal watershed, and Unit 117 is dangerously close. Alternative E of course is rampant with Harvest Units directly in the headwaters of the salmon-rich Sandborn watershed, implementation of which would be unconscionable. The DEIS similarly misleads public assessment by expressing loss of old growth forest as a percentage of total forest (which greatly includes ice, rock, muskeg and scrub timber) rather than as percentage of actual usable volume, making the percentage to be cut appear deceptively lower. This type of misrepresentation towards the public must be corrected.

58.9 SCS believes that the Forest Service should delete ALL logging units or roads in the salmon-supporting Sandborn Canal watershed and in all lands east to the Upper Port Houghton area. This would include deletion of all units mentioned above as well as those located in sections B and C east of the Sandborn Canal area. SCS supports the designation of Sandborn Canal and Salt Chuck as Wild and Scenic Rivers due to their particular importance to commercial fishing and tourism.

58.10 We oppose the construction of any new Log Transfer Facilities (LTFs). A small barge can be used in conjunction with Goldbelt's existing LTF in Hobart Bay, eliminating the need to construct any new LTF's in the project area.

58.6 There are no references to the Recession Bill in the Revised DEIS. The new Forest Plan has designated Old-Growth Habitat LUDs in the project area, which meet the intent of the Interagency Committee.

58.7 No timber harvest is proposed near Sandborn Canal in the Revised DEIS.

58.8 Each EIS map has a specific objective. Adding additional GIS layers to each map often obscures the original objective, particularly for the smaller scale maps in the EIS. None of the units in the Revised DEIS occur in the Sandborn Canal Old-Growth Habitat LUD. Old-growth forest, as defined in the *Biodiversity* section, represents high volume, productive old growth and does not include ice, rock, muskeg or scrub timber.

58.9 Refer to response to comment 18.2. The designation of Wild and Scenic Rivers is a TLMP, rather than a project level, decision.

58.10 Refer to response to comment 2.2. To utilize the Hobart Bay LTF for all of the project area would necessitate a road all the way from the Fanshaw Peninsula, across the Sandborn Canal watershed, around the Salt Chuck, and into the Laura's Creek watershed, tributary to Hobart Bay. The cost and environmental effects of building such a road just to eliminate the need for additional LTFs are excessive.



The Port Houghton DEIS needs to disclose and address all concerns and recommendations made in reports to Congress by the Interagency Committee peer review (*Review of Wildlife Management and Conservation Biology*) and in the 1995 *Anadromous Fish Habitat Assessment* (AFHA). Both reports found existing Forest Service protections for fish and wildlife to be inadequate. AFHA indicated clearly that the Forest Service is not doing enough to protect the long-term health of fish on the Tongass and made specific recommendations to better protect salmon and steelhead from the long-term impacts of logging. The Forest Service needs to address these issues especially given the critical importance of the Port Houghton area to commercial fishing, and should not continue with the planning process for the Port Houghton sale until these issues have been addressed in the Tongass Land Management Plan Revision.

58.11

Refer to response to comment 12.2.

Refer to response to comments 5.1 and 56.7.

Refer to response to comments 12.2 and 13.2.

Sitka Conservation Society supports the concept of avoiding timber harvest within one mile of shoreline areas as suggested in Alternative B, and would like to see this idea in addition to other protective mandates incorporated in Supplemental Alternatives reflecting the TLMP-authorized volume of 25MMBF. All current DEIS Action Alternatives offer only the inflated target volumes and contain units in the Sandborn watershed, as indicated above. Consequently SCS rejects all Action Alternatives presented in the DEIS and supports the No-Action Alternative until such time that a supplemental DEIS is released, following the TLMP Revision, that fully addresses all concerns raised here.

58.12

The Forest Service has a responsibility to protect the long-term health of fish and wildlife and to manage areas for the long-term benefit of all uses, including commercial and sport fishing, hunting, tourism, recreation and subsistence. Contrary to Forest Service claims to the public, there is no mandate to harvest timber anywhere on the Tongass. In fact, the Forest Service's own "Interim Habitat Management Guidelines for Maintaining Well-Distributed Viable Wildlife Populations within the Tongass National Forest" of the September 1994 Draft Environmental Assessment states: "The current Forest Plan *does not require* timber harvest or other projects to be implemented anywhere on the Tongass National Forest; the land allocations authorizing timber harvest in various areas of the Forest are *permissive, not mandatory*." (Tenakee Springs et al. v. Block et al) [emphasis added]. It is **THIS** guideline rather than pressure by timber interests that should be directing the Forest Service's approaches to planning, the implementation of which would finally offer the public, for their public lands, a "purpose and need" statement with some integrity.

58.13

Thank you for the opportunity to comment.

Sincerely,

Anita Lange

Sitka Conservation Society

cc. Mike Weber  
USFS  
Charlton Ave

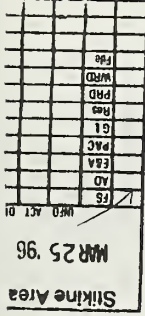
Port Houghton/Cape Fenshaw EIS

D-102

DEIS Public Comments

(SCS-p4)





Dear Sirs,

"Current standards and guidelines for timber harvest activities are expected to limit adverse effects on fish habitat and fish populations." This is quoted from page 4-127 of the Port Houghton DEIS. My question is does this report included the results of the USDA - ANADROMOUS FISH HABITAT ASSESSMENT (AFHA). Does the report authors agree with the assessments of AFHA? If so how was this included in the report. If not what points do you feel the report was incorrect? My concern is that the DEIS does not support the conclusions of AFHA. I would appreciate any comments on how AFHA conclusions would effect the lay-out of this sale.

Since this sale will effect one of the largest salmon producing areas of the mainland, I would of like to have seen the DEIS addressed the economic effect of cumulative timber sales on the fish habitat. Once a road network and log dump are in place the area is dedicated to repeat timber sales. All thought you state the effects of the first sale will be negligible what will the impacts be of future sales. If this will be the only sale in the area then it needs to be so stated. What happens to the economic assumptions if this is the only sale in the area.

Of concern to me are the references in the affected environment 3-42 to 3-56 to repeated concerns of the potential of mass debris events due to steep unstable soils and slopes. I realize the units are laid out to prevent these events but I quote AFHA conclusions. "Long-term application of current procedures could lead to, or in some cases continue, declines in habitat productivity and eventual loss of stocks or need for listing of salmon and steelhead stocks as endangered or threatened." My question is how will these units be different from current procedures? Will they prevent a long term decline in habitat?

I urge that a watershed analysis be completed before the final EIS is released. I recommend that no roads or log dumps be built in CA east of Sanborn Canal. I urge extreme caution in dedicating the resources of this area until we understand what the long term cumulative effects will be.

David Kensinger

Responses to David Kensinger

- 59.1 Refer to response to comment 12.2.
- 59.2 Economic impacts to commercial fisheries resources are discussed in Section 4.2.
- 59.3 Special logging procedures and BMPs would be applied to units and roads where sensitive soils resources were identified. Refer to the sections titled Integrated Resource Objectives and Soil, Wildlife and Water Conservation on the unit summary cards.
- 59.4 A watershed analysis was used for this EIS evaluation. Refer to the fisheries sections of Chapters 3 and 4. However, there are several additional quantitative methodologies that could be employed to conduct a more thorough watershed analysis. The methodologies that would be applied for the Tongass National Forest are being evaluated at this time, and no final approach has been identified.



Responses to Julie Hammonds Penn

- 60.1 Refer to response to comment 13.2 and 12.2
- 60.2 Refer to response to comment 13.2.
- 60.3 Refer to response to comment 3.3.

**Julie Hammonds Penn**

P.O. Box 22474  
Juneau, Alaska 99802  
pager (907) 789-8302

March 25, 1996

Ms. Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

Re: Proposed Port Houghton/Cape Fanshaw Timber Sale

Dear Ms. Gunther:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the proposed Port Houghton/Cape Fanshaw Timber Sale. Public involvement in the Forest Service planning process is vital to the continued health of the Tongass National Forest, our forest home.

For reasons largely beyond the control of Parametrix, the Port Houghton/Cape Fanshaw DEIS is fatally flawed. With this document, the Forest Service continues to elevate timber supply above all other uses of the Tongass, disregarding its mandate to manage our national forests for balanced multiple use. The Forest Service also disregards vital scientific information which shows that its management of fish and wildlife populations must be improved if viable populations are to be maintained on the Tongass.

**Balanced Multiple Use Required**

The Forest Service is required by law to manage the Tongass for all its users, including commercial fishermen from Petersburg, tour operators from Juneau, and subsistence hunters and fishermen from throughout Southeast. Cutting 125 mmbf of timber from the delicate, resource-rich area contemplated in this proposed timber sale violates that mandate. For example, the proposed harvest will impair the use of this pristine area for recreational users such as sea kayakers and hikers. Tour operators provide jobs to Southeast Alaskans, and these jobs depend on the health of the forest. The proposed sale will also endanger the commercial fishery in the area.

I question the continued slavish attention paid to the Ketchikan Pulp Company contract. This company has been convicted of dumping toxic sludge into the waters near its plant in Ketchikan. How come the needs of KPC, a convicted polluter company, come before those of all other users of the Tongass?



Scientific Information Ignored

60.4

Like recent DEISs for other timber sales in Southeast, this DEIS fails to disclose and address the vital concerns raised by the *Review of Wildlife Management and Conservation Biology* and the *Anadromous Fish Habitat Assessment*. These studies found existing Forest Service management of fish and wildlife in the Tongass to be inadequate to ensure the long-term viability of these populations. Alarming, these reports disclose that the Forest Service is making many of the same mistakes in the Tongass as were made in the Pacific Northwest, following inadequate policies that contributed to the decline of predator, prey and fish species in the Lower 48. We can't let these policies continue in Alaska! When will the Forest Service fully protect the biodiversity on which the health of this forest depends?

Questions Left Unanswered

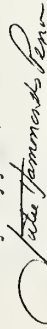
60.5

Where did the goal of 125 mmbf come from? Why was the public not involved in the process of setting this target level of harvest? Is this level of harvest truly sustainable throughout the Tongass? How much old-growth has been cut from the Tongass already, and how much more will be cut to satisfy KPC?

60.6

Many of these questions are more appropriately answered in the long-awaited *Tongass Land Management Plan* update, due to be presented tomorrow. I urge the Forest Service to delay approval of the Port Houghton/Cape Fanshaw timber sale until the revised TLMP has been approved. I am hopeful that important areas like Port Houghton will receive permanent protection under TLMP and this sale will be canceled altogether.

Very truly yours,

  
Julie Hammonds Penn

Responses to Julie Hammonds Penn

60.4

Refer to response to comment 12.2. No species on the Tongass National Forest is expected to have a viability concern from actions proposed under this project, nor is biodiversity expected to be adversely affected.

60.5

Refer to comment 5.1. The public was involved in the decision that the project area would be managed for intensive resource use and development where emphasis is primarily on commodity or market resources through the Tongass Land and Resource Management Plan NEPA process. The agency has the discretion and land stewardship responsibility to identify a purpose and need based on the direction provided by the Forest Plan and to develop a proposed action. Refer to the Forest Plan (1997) for discussions of Tongass-wide concerns.

60.6

Refer to response to comment 10.2. Port Houghton is still available for timber harvest under the new Forest Plan (1997).





## Alaska Passages

P.O. Box 213 Petersburg, Alaska 99833 (907) 772-3967  
voice & fax

March, 26, 1996

To: Pam Gunther  
Parametrix, Inc.  
FAX No. 206-889-8808

Re: Port Houghton/Cape Fanshaw Timber Sale Draft EIS

I am very concerned with the size of the timber sale planned. We use this area extensively in our charter business and its value to us is in having it remain in as much a wilderness state as possible. The Cape Fanshaw/Whitney Island area is very heavily used by us and many other people, both commercial and private. Any harvest visible from this area would be disastrous.

Another area of particular concern is Sanborn Canal and to the east of there. None of the area to the east should be harvested, the timber is of low value, the slopes steep and log dumps in this area would be particularly offensive. Sanborn, the North Arm and salt chuck is spectacular country and should remain unroaded to maintain their wilderness value. I like the idea of using helicopters to harvest though I don't think the areas near the North Arm should be harvested at all. Some of my biggest objection to logging all of this sale is the long term effect of having it roaded.

The proposed size of this sale at 125 million feet is entirely too large, it's a throwback to the bad old days of poor management. It should be postponed until after the TLMP revision and redone on a smaller scale to reflect more responsible management. The fisheries and tourism values of this area are too high to do otherwise.

Sincerely,

Scott Hursey

P.S. I faxed this to you on March 26, here is the original

### Responses to Alaska Passages

- 61.1 Comment noted. The overall analysis showed that the timber harvest would be visible in the Whitney Island viewshed, but barely discernable, and consistent with the VQOs adopted in the new Forest Plan. Also, refer to response to comment 5.3.
- 61.2 Refer to response to comment 18.2. Helicopter logging is expensive and not conducive to economically small sales, that are preferred by some members of the public.
- 61.3 Refer to response to comments 5.1 and 10.2.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 Sixth Avenue  
Seattle, Washington 98101

March 26, 1996

Reply To  
Attn Of: ECO-088

Ref: 94-065-AFS

Dave Cottrell  
Petersburg Ranger District  
Tongass National Forest  
15 12th Street  
Petersburg, Alaska 99833

Dear Mr. Cottrell:

In accordance with our responsibilities under the National Environmental Policy Act and §309 of the Clean Air Act, we have reviewed the Draft Environmental Impact Statement (draft EIS) for the proposed Port Houghton/Cape Fanshaw Timber Sale Project. The draft EIS analyzes four action alternatives to harvest between 116 and 123 million board feet of timber from about 5,471 to 7,244 acres on the Southeast Alaska mainland, approximately 30 miles northwest of Petersburg, Alaska. The draft EIS identifies Alternative B as the preferred action alternative.

Based on our review, we have rated the draft EIS EC-2 (Environmental Concerns - Insufficient Information). This rating and a summary of our comments will be published in the *Federal Register*.

Our primary concerns, which are related to the potential impacts of the project on water quality and the marine environment, are highlighted below.

1) We are concerned about the potential impacts of existing and proposed log transfer facilities (LTFs) on the marine environment. Information in the draft EIS suggests that the proposed LTF at Little Lagoon may not conform with Alaska Timber Task Force recommendations for siting LTFs. Additionally, the EIS fails to address potential impacts associated with the use of the existing LTF at Hobart Bay. Because Hobart Bay has been identified as an impaired water body by the State of Alaska under Section 303 of the Clean Water Act, it is critical that direct project-related impacts to Hobart Bay be fully evaluated in the EIS.

2) We are concerned that the proposed project may adversely impact water quality and fish habitat in watersheds within the project area. Information presented in the draft EIS suggests that the Robert Islands Creek, West and East Fork Negro Creek, and Walter Island Creek watersheds would be particularly vulnerable to impacts from road

Responses to USEPA

- 62.1 Additional information on the Hobart Bay LTF has been added to sections 3.2. and 4.2. of the Revised DEIS. The Little Lagoon LTF site was selected with the help of all the agencies involved in LTF permitting, except USEPA, as the most optimum site in meeting siting guidelines and upland storage, camp, and road requirements. ATTF siting guidelines describe the ideal situation for locating LTFs but the ATTF recognized this would not always be possible. Hence, they remain guidelines and do not have the force of law or regulation.
- 62.2 By incorporating BMPs into unit and road design and considering stream buffers required by Forest Plan standards and guidelines and mandated by TTRA, we do not expect adverse impacts to water quality or fish habitat. Refer to Appendix E of the Revised DEIS for monitoring activities that specifically target water quality and fish habitat.

Port Houghton/Cape Fanshaw EIS

D-107

DEIS Public Comments



Responses to USEPA

- 62.3 The ROD will identify the mitigation measures that will be implemented for this project.
- 62.4 Additional monitoring for water quality has been added to the Monitoring Plan. Refer to Appendix E of the Revised DEIS.
- 62.5 The KPC mill is closed. Mill operations in general and log storage at Thorne Bay or elsewhere are covered by other environmental laws and/or permits under the jurisdiction of other agencies. The incremental effect from this project at any individual site is expected to be inconsequential.

construction and harvest activities.

62.3 3) We are concerned with the lack of a clear commitment to implement applicable mitigation measures. The final EIS should present a clear description of the mitigation measures to be employed with project implementation, along with a clear commitment to implement those measures.

62.4 4) We are concerned with the lack of a clear commitment to perform effectiveness monitoring related to impacts on water quality/fish habitat and the marine environment. The monitoring proposals for evaluating LTF bark accumulation and post-sale road use should be expanded in the final EIS to address this concern. Furthermore, the final EIS should discuss monitoring efforts which have been planned or conducted consistent with Monitoring Plans developed specifically for the Stikine and Chatham Areas.

62.5 5) The draft EIS fails to evaluate environmental effects outside of the project area. The final EIS should include such analyses to satisfy the implementing regulations for the National Environmental Policy Act.

Enclosed please find our detailed comments, which elaborate further on these issues as well as other areas of concern we believe need to be addressed in the final EIS. We are interested in working closely with the Forest Service in the resolution of these issues and I encourage you to contact Bill Ryan at (206) 553-8561 at your earliest convenience to discuss our comments and how they might best be addressed.

Thank you for the opportunity to review this draft EIS.

Sincerely,



Richard B. Parkin, Manager  
Geographic Implementation Unit

Enclosure

cc: Jim Ferguson, ADEC  
NMFS  
ADFG  
COE-Alaska District



Responses to USEPA

Refer to response to comment 62.1.

Refer to response to comment 62.1. The LTF at Hobart Bay is already under permit to a private corporation which also owns the LTF. To use this LTF for the proposed timber harvest, an agreement between the Forest Service and the owner would be required. Compliance with the applicable permits and agreements with the owners would be conducted at the time the facility is needed.

Refer to response to comment 62.1. All feasible LTF sites were examined and agencies involved in LTF permitting were invited to participate in selecting a preferred site. The USEPA declined to participate when invited to be a cooperating agency.

Detailed Comments for  
Port Houghton/Cape Fanshaw Timber Sale Project  
Draft Environmental Impact Statement (draft EIS)

**Log Transfer Facilities**

The proposed action alternatives discussed in the draft EIS would utilize an existing log transfer facility (LTF) at Hobart Bay and potentially up to three (3) new LTFs located at Little Lagoon, Rabbit Cove, and North Point. The proposed action alternatives B, C, and D would utilize one (1) existing log transfer facility at Hobart Bay. The final EIS should address the potential site-specific impacts to the marine environment from the continued operation of the existing LTF. The impacts may be significant and may warrant further evaluation.

Although the Hobart Bay LTF is located outside the Port Houghton/Cape Fanshaw Timber Sale Project Area, NEPA requires full disclosure of potential environmental impacts associated with the proposed federal action. The final EIS should provide additional site-specific information related to the current conditions of the existing Hobart Bay LTF. This information should include (1) an evaluation of the biological resources, (2) delineation of the areal extent and outer boundary of bark accumulation, and (3) estimates of the thickness and percent cover of bark debris. The additional information is required to allow our agency and the public to evaluate whether accumulation of bark from the continued operation of the Hobart Bay LTF site may result in an direct and/or cumulative impact to the marine environment. Furthermore, the final EIS should include a description of the existing LTF, including (1) transfer devices (e.g., cranes, low-angle slide, A-frames (single or double with a mechanism for controlling speed), log slides, log bundle conveyors, drive down ramps, etc.), and sorting and storage areas, and (2) past estimate of timber volume (MMBF) handled by the existing LTF.

We are concerned with the potential impacts associated with the development of the Little Lagoon LTF. Table K-1 of the draft EIS indicates that the site does not comply with many of the recommendations of the ATTF for siting LTFs. For example, the site would be located within 300 feet of the mouth of a Class I anadromous fish stream. The site would also be located within 0.5 miles of a known Pacific herring spawning area. Based on those criteria, this site would appear to be inconsistent with the ATTF siting guideline S1. Furthermore, the site would be located in a highly productive hardshell clam area. This appears to be inconsistent with ATTF siting guideline S7 related to the protection of shellfish. Table K-1 also presents seemingly conflicting information related to the ability of the area to effectively disperse wood debris (see S5) and also provide "relatively good protection from weather and open water at this site" (see S8). Based on the information presented in Table K-1 and discussions contained in the draft EIS, we do not believe that sufficient information has been provided to demonstrate that the Little Lagoon site meets ATTF siting criteria or that any deviations from those criteria would result in insignificant impacts.

DEIS Public Comments

D-109

Port Houghton/Cape Fanshaw EIS



## Responses to USEPA

62.9	Permits for LTFs include monitoring and reporting requirements.
62.10	Refer to response to comment 2.2. The expense of barging logs would make small independent timber sales less attractive, if not prohibitive, to small operators.
62.11	Refer to response to comment 2.2.
62.12	Section 2.5.2 of the Revised DEIS states that a low-angle ramp and slide is preferred transfer method. A decision on the method of transfer will be detailed for the selected alternative in the ROD.
62.13	Bark deposition and dispersion methods are discussed in Section 4.2.1.2 of the Revised DEIS.
62.14	Comment noted.

We are encouraged by the incorporation of specific resource information and description of impacts and the inclusion of the ATTF siting guidelines in Appendix K. The draft EIS does not, however, indicate how the operation of the existing and proposed new LTFs would comply with the ATTF guidelines for Monitoring/Reporting. The final EIS should present information on how existing and new LTF sites would be monitored for:

- M3. Bark accumulation (M4). Elements of bark accumulation monitoring should include but not be limited to the following:
- permanent transects
  - measurements of areal extent, outer boundary, thickness and percent coverage of bark debris.

In general, the EPA supports an alternative to log transfer which would minimize or avoid the direct, indirect, and cumulative impacts to the marine environment. The direct land to barge transfer of logs to a barge would avoid and minimize the adverse impacts of bark discharge, accumulation, shading, and compaction associated with log transfer, rafting, and storage.

The draft EIS proposes an alternative to the development of new LTFs at North Point and Rabbit Cove (Alternative D; page 2-15). Several options have been proposed to manage the timber volume between Sandborn Canal and North Point. The options include: (1) dropping logs directly into the water, consolidating within bag booms, and moving to the Little Lagoon LTF site for rafting and storage, (2) dropping logs directly into the water to be loaded onto a barge, or (3) dropping logs directly onto the barge for transportation to the mill site. EPA supports option 3, which would minimize the discharge of bark and other woody debris into the marine environment. The final EIS should further explore this option for all action alternatives. Helicopter transfer of logs directly onto barges would preclude the need for the construction of two (2) new LTFs at Rabbit Cove and North Point, and additional forest roads. Furthermore, it may not be practicable to construct two new LTFs at North Point and Rabbit Cove for short-term use and the low volume of timber.

Page 2-20 discusses 4 methods to transfer logs from land to water but does not clearly indicate which method would be used at each LTF to handle the proposed volumes. The final EIS should indicate which method would be utilized at each LTF site (and particularly for the Little Lagoon site). Without this information, it is difficult to determine the potential impacts that LTF operation would pose to the marine environment.

Table 2-5 on page 2-37 presents estimates of bark deposition/dispersion for each alternative. Unfortunately, the draft EIS fails to indicate the methodology used to derive these estimates. The final EIS should provide a discussion of the manner in which deposition/dispersion rates were estimated.

We recommend that log sorting be performed on land to minimize and/or avoid discharges to the marine environment.



Refer to response to comment 62.2.

Specific road design elements such as the type or size of drainage structures are determined during implementation. Forest Service manual and handbook direction and BMPs assure fish habitat and water quality will be protected.

BMPs are required. Monitoring (both implementation and effectiveness) is conducted on a Forest-wide basis to ensure that BMPs are implemented and working properly. Each timber sale contract requires the closure of temporary roads unless the contract specifically allows for a road to be left open; leaving temporary roads open is more an exception than a rule. The commitment to road closures and method of closure will be described in the ROD.

62.15

## Impacts on Fish Habitat and Water Quality

Information presented in the EIS indicates that fish productivity may currently be limited in some watersheds (Robert Islands Creek, East and West Forks Negro Creek) due to natural sedimentation processes. Additionally, results presented in Tables 4-19 and 4-20 indicate that the three watersheds mentioned above plus the Walter Island Creek watershed would be adversely affected with the implementation of the preferred alternative (Alternative B). Table 4-19 shows that all four watersheds would have greater than 10 percent of the timber harvest and road acres in the watershed within the rain-on-snow zone. It is difficult to understand the conclusion that "effects of timber harvesting and associated activities on peak flows...are not expected to cause measurable adverse effects" when the discussion on page 4-52 suggests that values greater than 10 percent indicate that adverse effects are likely. The results of the sediment yield analysis (Table 4-20) also suggest that "water quality standards may be exceeded" in the East Negro Creek watershed with the implementation of Alternative B. Considered collectively, we believe that these results indicate the strong need to ensure that measures designed to maximize the protection of fish habitat and water quality would be implemented, particularly in those watersheds that have been identified as being vulnerable to impacts from the proposed project.

62.15

We had great difficulty substantiating the claim on page 2-19 that bridges are proposed for all crossings of Class I streams and about 50 percent of Class II streams. In our analysis of 2 of the 6 maps presented in Appendix B, we found that not all crossings of Class I streams were identified as having bridges (the maps identify only bridges "over 40 feet"). We found that Maps 1 and 3 show a total of 10 Class I crossings with 4 bridges "over 40 feet." We also found that 7 bridges "over 40 feet" were proposed for the 18 Class II crossings indicated on these maps. Unfortunately, the road summary cards do not clearly indicate what type of crossing structure would be constructed at each stream. We feel the claim that all Class I streams would be crossed using bridges requires additional substantiating information in the final EIS. We also believe that the final EIS should indicate how the approximately "50 percent" of Class II crossings using bridges relates to the protection of fish habitat and water quality. This is particularly important since the EIS indicates that bridges are proposed where "fish habitat protection is necessary" and there are many stream crossings in the project area.

62.16

## Mitigation Measures

Page 2-19 indicates that upon completion of log hauling, temporary roads "are deactivated by water barring the roadbed and removing drainage structures." It is not clear that these approaches would be employed with project implementation. Additionally, it is not clear that the approaches described would be consistent with the prescriptions identified in BMP 14.24 (Soil and Conservation Handbook, FSH 2509.22) which calls for the obliteration of temporary or short-term roads. Appendix L is equally vague by indicating that the recommendations in BMP 14.24 "may be implemented" (emphasis added). We recommend that the final EIS present a clear commitment by the Forest Service to mitigate impacts from temporary roads within the project

62.17



Responses to USEPA

62.18	The referral in Appendix L to Appendix C was a typing error. The referral should have been to Appendix K. This is corrected in the Revised DEIS. Mitigation for the selected alternative will be described in detail in the ROD.
62.19	If interested in monitoring efforts conducted on the Tongass National Forest, please refer to the Tongass National Forest Annual Monitoring and Evaluation Reports. Additional project-specific monitoring has been added to Appendix E of the Revised DEIS. The monitoring described in Appendix E is in addition to Forest-wide monitoring that may or may not occur in the project area. The locations for Forest-wide monitoring would be determined by the Region 10 watershed and monitoring specialists.
62.20	Refer to response to comment 12.2.

area by using applicable BMPs (BMP 14.24 for road closure and BMP 14.17 for stream crossing structure removal), consistent with the requirements of both the Tongass Timber Reform Act (TTRA) and Tongass Land Management Plan (TLMF).

Appendix L indicates that the majority of mitigation measures to be applied to LTFs are identified in Appendix C of the draft EIS. Unfortunately, Appendix C identifies the Road Management Objectives for the project area and does not contain mitigation measures to be applied to the construction and operation of LTFs. The discussion in Appendix L does identify mitigating measures that should be used, but fails to indicate measures that would be used. The final EIS should clearly identify all mitigation measures to be used and a commitment that they would be used with the implementation of the proposed project.

**Monitoring**

The Monitoring Plan presented in Appendix E makes no reference to existing monitoring strategies for either the Sukine or Chatham Areas. Consequently, it is difficult to know whether other monitoring efforts within either Area or the project area have taken place or will take place that are/would be useful in evaluating the effectiveness of Best Management Practices (BMPs) in protecting water quality and fish habitat. We believe that it is absolutely critical that the EIS report findings from past effectiveness monitoring efforts to support the reliance on Tongass Timber Reform Act (TTRA)-defined 100-foot minimum buffers for Class I and Class II streams and other BMPs for protecting beneficial uses and meeting state Water Quality Standards (WQS). The 1995 *Report to Congress - Anadromous Fish Habitat Assessment (AFHA)* indicates that 100-foot buffers are generally not sufficient on larger Class I and II streams. Similarly, the EIS should provide information indicating that the proposed practices to be employed in headwater areas will provide sufficient protection of water quality and fish habitat. Without this information, the apparent determination that fish habitat and water quality would not be significantly impacted lacks a supporting technical basis. Given the lack of information related to effectiveness monitoring on the Tongass in the EIS, we are also concerned with the relatively modest monitoring effort being proposed for the project area and the level of detail of that proposal. The "plans" for monitoring LTF bark accumulations and post-sale road use (and associated impacts) are each described in no more than 2 sentences! Monitoring is particularly important for a project of this magnitude, because it provides a check on the predictions of effects for the action alternatives. It is important to evaluate the effectiveness of planned mitigation measures in protecting resources potentially affected by future timber sales.

We are aware of a number of effectiveness monitoring efforts on the Tongass that have been initiated in the last several years (see *Report to Congress - Anadromous Fish Habitat Assessment (AFHA)*, January 1995, Appendix D and *Tongass National Forest Annual Monitoring and Evaluation Report, Fiscal Year 1994, March 1995, R10-MB-286*) and recommend that any results currently available from these studies be obtained, discussed in the final EIS, and integrated into the planning for this proposed timber sale.



In the event that results from the studies identified in the reports cited above are not available, inconclusive, or indicate that changes to BMP's may be necessary, we recommend that a monitoring plan be developed which includes the types of surveys to be conducted, location and frequency of sampling, parameters to be monitored, indicator species, budget, procedures for using data or results in plan implementation, and availability of results to interested and affected groups. *Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska*, EPA/910/9-91-001, May 1991, is a useful document for developing an effective water quality monitoring plan.

Consistent with BMP 11.6, we believe that the final EIS should include a feedback mechanism which relies upon monitoring (including quantitative measurements) so that standards and guidelines, BMP's, standard operation procedures, intensity of monitoring, and timber sale administration can be adjusted when effectiveness monitoring indicates a need. Providing such a process for adjustment will ensure that mitigation measures will improve in the future and that unforeseen project-related effects are recognized and corrective actions can be taken.

#### Environmental Effects Outside the Project Area

The draft EIS fails to identify and evaluate potential consequences of the proposed project "outside" the project area boundaries. We believe that additional discussion of these potential impacts must be included in the EIS to satisfy the implementing regulations for NEPA (40 CFR 1502, section 1502.16). Because the proposed project would provide timber to the Ketchikan Pulp Corporation (KPC), the project would generate air and water quality impacts in the vicinity of the KPC mill at Ward Cove. Additionally, we are aware that most logs delivered to KPC usually are stored for some period of time at Thorne Bay. These impacts (if logs from this project are transported to Thorne Bay) should be addressed in the final EIS. Implementation of the proposed project would also result in impacts to Hobart Bay through the use of the existing LTF at Hobart Bay. These impacts should be evaluated in the final EIS. Some questions/issues that should be addressed in the final EIS include:

What are the current air and water quality conditions at/near the above mentioned locations and what impacts to those conditions are likely to result from each proposed project alternative?

Are there currently permits in place at these facilities? What types of permits? What is the status of those permits?

Do any of the areas that would be affected by the proposed timber sale currently exhibit air quality or water quality problems?

Thorne Bay, Hobart Bay, and Ward Cove have been identified by the State of Alaska as impaired water bodies under section 303(d) of the Clean Water Act. What are the implications of project-related activities on the quality of these water bodies?

62.21	Comment noted.
62.22	Comment noted. This procedure will be followed.
62.23	Refer to response to comment 62.5. Timber from the Port Houghton/Cape Fanshaw project area would be sold through competitive bidding. Where the timber would be processed cannot be anticipated and analyzed in the EIS.



Responses to USEPA

- 62.24 Refer to revisions to Section 1.7 of the Revised DEIS concerning USEPA's role for this project.
- 62.25 Refer to response to comments 3.3, 5.1, and 55.9. The Forest Service has the discretion to determine the purpose and need for site-specific projects in implementing the Forest Plan. Neither the CEQ regulations or Forest Service direction requires that the agency justify the purpose and need for a project. CEQ (1502.13) simply says to "Briefly specify the underlying purpose and need..." The purpose and need is responsive to goals and objectives of the Forest Plan. USEPA did not raise a concern about the purpose and need in their scoping comments dated 11/29/95 and criticism at this point in the project is not appropriate. Ecosystem management was used in the development of alternatives, units, and roads as described in the EIS, as well as in the Forest Plan.

The final EIS should include a discussion/evaluation of the direct project-related impacts "outside" of the project area.

Cooperating Agency Status

The draft EIS incorrectly identifies the Environmental Protection Agency (EPA) as a cooperating agency on this project. While the EIS correctly indicates that National Pollutant Discharge Elimination System (NPDES) permits would need to be issued by EPA for log transfer facilities (LTFs) under Section 402 of the Clean Water Act, that does not confer official cooperating agency status on EPA for this project. The responsibilities of lead and cooperating agencies are presented in the implementing regulations for the National Environmental Policy Act (40 CFR 1501, section 1501.6). As we indicated in our November 28, 1994 letter from K. Velt to G. Morrison, we were unable to accept formal cooperating agency status for this project and the Northwest Baronof Timber Sales project due to resource constraints. We look forward to working cooperatively with the Forest Service in the development of any necessary NPDES permits for the proposed LTFs in the event that the proposed project moves forward. We encourage you to contact Susan Cantor in our Anchorage office (907-271-3414) at your earliest convenience to initiate discussions related to the permitting of potential LTFs.

Purpose and Need

It is difficult to determine why a timber harvest volume between 100 and 125 million board-feet (MMBF) is explicitly identified in the purpose and need section of the draft environmental impact statement (EIS). While we understand the purpose and need for the project is 1) to satisfy elements of the KPC contract and 2) to move toward the desired future condition of the forest as identified in the Tongass Land Management Plan (TLMP), the EIS does not explain why the harvest volume associated with this particular sale is necessary to meet those needs.

We believe there are issues related to National Environmental Protection Act (NEPA) implementation that arise by explicitly specifying a harvest volume in the purpose and need section of the draft EIS. For example, in stating that the needed volume from the proposed project is 100 to 125 MMBF, we believe that the range of alternatives has been limited to those that would meet the specified volume. We believe that both the KPC contractual obligations and movement toward the desired future condition of the forest can likely be met through a wider array of harvesting options than those identified in the draft EIS (perhaps smaller, dispersed timber sales). Furthermore, in defining a specific volume for this project, we have concerns that critical decisions in the planning process (i.e., determination of the target volume) may have been made without adequate public involvement.

Additionally, we have some concerns that the specification of a target harvest volume in the purpose and need section of the draft EIS may conflict with the Forest Service's stated direction of using "ecosystem management" in their decision-making process. We believe that the



approach being taken in this EIS to manage the ecosystem “around” the desired timber harvest level instead of identifying the elements needed to maintain a healthy ecosystem and evaluating the project alternatives in relation to those needs. We believe that a management approach which is driven by pre-defined harvest levels will not ensure maintenance of a truly healthy ecosystem within (and outside) the project area.

The draft EIS does not provide any information related to the process used in defining the target timber harvest volume, and why it is judged to be “needed.” At a minimum, the final EIS should identify the process used in determining the target harvest volume identified in the draft EIS, and how that process relates to the concerns identified above. This “pipeline” analysis should present the proposed 100-125 MMBF volume identified in the draft EIS, along with all other planned timber sales (and volumes), to provide reviewers an understanding of overall harvest needs relative to the KPC contract requirements.

Affected Environment and Environmental Consequences

We are concerned with the lack of quantitative information presented in the draft EIS in general, and specifically related to compliance with Alaska Water Quality Standards. This is the case in the assessment of existing conditions as well as in reporting expected impacts associated with the project alternatives. While the discussion of the watersheds containing potential harvest units was particularly useful, it is extremely difficult to determine the current state of the watersheds within the project area (baseline conditions) or the significance of the impacts to those watersheds for each of the project alternatives. While surrogate indicators are provided throughout the EIS which give some gross indication of the potential to impact water quality in a relative sense (e.g., number of stream crossings, acres of roads and disturbed soils, etc.), there is little information provided that allows the reader to translate these indicators into what conditions presently are or are likely to be in the affected streams in an absolute sense. Because insufficient information exists to indicate whether streams within the project area currently comply with or exceed WQS, it is difficult to determine whether any of the proposed alternatives would pose unacceptable risks to water quality and fish habitat. This points out the critical need for adequate baseline monitoring information as the foundation for the evaluation of potential project-related impacts.

Water Quality Standards

The achievement of WQS for nonpoint source (NPS) activities is intended to result from the implementation of BMPs. BMPs are to be designed to achieve WQS, which would include applicable water quality criteria (WQS consist of both designated beneficial uses and the criteria necessary to protect the uses, and an anti-degradation policy). In other words, the water quality criteria are the measures by which BMPs are judged to achieve water quality protection. In addition, the anti-degradation policy explicitly lays out that existing beneficial uses must be fully protected.

62.26 The detailed fish habitat and water quality information collected during field surveys for this EIS may be used as baseline information to be compared to monitoring data collected during and following timber harvest. Additional baseline information may be collected before the sale is implemented.

62.27 Comment noted.



Refer to response to comment 62.19.

62.28

Also, BMP application does not equal standard compliance. The key issue however, as previously stated, is that findings of effectiveness monitoring efforts on the Tongass National Forest, and in the Sitkine and Chatham Areas specifically, have not been reported or referenced in this EIS. Consequently, assurances of compliance with WQS are not meaningful with this fundamental link missing. BMPs are assumed to protect water quality, but monitoring must be conducted to determine if that is truly the case. If they are not protective, then the BMPs must be revised. This reinforces the need to conduct effectiveness monitoring studies as a component of the proposed project.

Antidegradation

EPA believes that the proposed project could potentially exceed WQS so that the fisheries beneficial use will not be fully maintained, thereby violating the federal antidegradation policy. An antidegradation analysis, as specified in the Antidegradation Policy [40 CFR 131.12], should be included in the final EIS. This policy was developed to achieve the goals of the Clean Water Act, which are to restore and maintain the chemical, physical and biological integrity of the nation's waters.

The Antidegradation Policy describes three tiers of protection. Briefly:

Tier 1:

No activity is allowable which would partially or completely eliminate any existing beneficial use of a water body, whether or not that use is designated in a state's WQSs. If an activity will cause partial or complete elimination of a beneficial use, it must be avoided or adequate mitigation/preventive measures must be taken to ensure that the existing uses and the water quality to protect those uses will be fully maintained.

Tier 2:

Where the quality of the waters exceed "fishable/swimmable" levels ("high quality waters"), that quality shall be maintained and protected unless the following are completed:

- 1) a finding that such degradation is necessary to accommodate important economic or social development in the area in which the waters are located.
- 2) full satisfaction of all intergovernmental coordination and public participation provisions, and
- 3) assurance that the highest statutory and regulatory requirements and BMPs for pollutant controls are achieved.

Please note that this provision is intended to provide relief only in extraordinary circumstances where the economic and social need for the activity clearly outweighs the benefit of maintaining water quality above that required for "fishable/swimmable" water. The burden of demonstration on the party proposing such activity is very high. In any case, the activity shall not preclude the maintenance of a "fishable/swimmable" level of

62.28

62.29

The alternatives are consistent with all applicable federal and state regulations. These regulations are referred to in the EIS but are not described in detail as this would result in a considerably expanded and unwieldy EIS. Refer to revisions to Section 1.8 of the Revised DEIS.



62.30	water quality protection.	Refer to Section 1.8 of the Revised DEIS which references the Clean Water Act.	Responses to USEPA
62.31	Tier 3: Where "high quality waters" constitute outstanding national resources, that water shall be maintained and protected. As with the other tiers, the state determines the "tier" of the water body. If necessary, EPA can provide guidance on determining water quality status.	The project proposes timber harvest. As a result there are estimated effects. There is no body of evidence that indicates that after 40+ years of timber harvest on the Tongass National Forest that commercial fishing or recreation/tourism industries have been adversely affected. To the contrary, fish stocks are healthy and the recreation/tourism industry is burgeoning. We have no reason to expect this to change because of this project.	
62.32		These changes have been made to the Revised DEIS.	

**Federal Consistency Provisions of §319 of the Clean Water Act**

The final EIS needs to fully integrate §319 of the Clean Water Act. Existing water quality conditions in National Environmental Policy Act documents need to reflect and reference the state's water quality assessment. Direct or indirect nonpoint source water quality effects need to be reduced through design and mitigation measures to ensure that the project is consistent with the state's NPS program. The contact for the Alaska Department of Conservation is:

Jim Ferguson  
Forestry Services Team Leader  
Alaska Department of Environmental Conservation  
Phone: (907) 465-5365

**Economic and Socioeconomic Analyses**

The discussion of the economic impacts on the commercial fishing and recreation/tourism industries contained on page 4-127 presents little information to substantiate the claim that these economic sectors would not be expected to be significantly impacted. Tables 4-39 through 4-42 present quantitative indicators of the economic impacts of the proposed project on the timber industry. Unfortunately, we were unable to locate comparable information related to the fisheries and recreation/tourism industries. If the appropriate information is presented elsewhere in the EIS, the text should be modified to clearly identify where this information can be located. Without this type of information, we believe that there is no basis for the "expectation" of insignificant impacts to these business sectors.

**Page Specific Comments**

P. 1-17	Include the Executive Orders on protection of wetlands and flood plains.
P. 2-33	Paragraph 3; Substitute "Alaska Terminal Transfer Facility (ATTF) with "Alaska Timber Task Force."
P. 3-8	Paragraph 4, Substitute "Appendix K" for "Appendix C"





TONY KNOWLES, GOVERNOR

Responses to ADGC

## OFFICE OF THE GOVERNOR

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March 26, 1996

Pam Gunther, Project Leader  
Parametrix, Inc.  
5808 Lake Washington, Blvd. N.E., Suite 200  
Kirkland, WA 98033

SUBJECT: Port Houghton/Cape Fanshaw Timber Sale DEIS  
AK 9602-19JJ

Dear Ms. Gunther:

Slate agency comments to the draft environmental impact statement for the Port Houghton/Cape Fanshaw timber sale are attached for your consideration. Preliminary Alaska Coastal Management Program (ACMP) issues are identified where appropriate. A separate ACMP consistency finding will be submitted to the Forest Service by April 1, 1996.

Thank you for the opportunity to comment.

Sincerely,

Lisa A. Weissler  
Project Analyst

cc: Gary Morrison, USFS, Sitka  
Abigail Kimbell, USFS, Petersburg  
Lana Shea Flanders, ADF&G, Douglas  
Phil Mooney, ADF&G, Sitka  
Tom Paul, ADF&G, Douglas  
Jim Ferguson, DEC, Juneau  
Jim McAllister, ADNIR, Juneau

Port Houghton/Cape Fanshaw EIS

D-118

DEIS Public Comments



DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Jim Ferguson, Team Leader  
Division of Air and Water Quality

The Department of Environmental Conservation has reviewed the Draft Environmental Impact Statement for the U.S. Forest Service's proposed Port Houghton/Cape Fanshaw Timber Sale. This sale, which will be sold as an independent timber sale or offered as part of the KPC Long-term Contract, proposes to harvest approximately 123 MMBF of timber and to construct up to 90 miles of road. Associated with this project is the use of the existing log transfer facility (LTF) at Hobart Bay, and the development of up to three new LTFs at Little Lagoon, Rabbit Cove, and North Point. These new facilities will undergo separate ACMP reviews, and will be subject to DEC Certificates of Reasonable Assurance (410 Certifications). We are focusing our comments on Alternative B, as it has been identified by the Forest Service as the preferred alternative for this project.

PRELIMINARY ACMP ISSUES

Water and water quality are coastal resources affected by timber sale activities. ADEC has the following concerns regarding impacts to water quality by this proposed activity:

63.1

1. ADEC is extremely concerned about the level of watershed sensitivity, and specifically, about the reported natural levels of fines in Robert Islands Creek and East Fork Negro Creek. Similar concerns exist for the West Fork of Negro Creek. We are particularly concerned about the East Fork of Negro Creek which, according to the EIS (Table 4-18), has the highest percentage of harvest proposed (18%) of all the watersheds considered under Alternative B. Further, 78% of this harvest (310 acres) is located in the rain-on-snow zone elevation zone (Table 4-19) which, as indicated in the EIS, can significantly alter the timing and increase the magnitude of runoff to streams (page 4-50). In addition, there are numerous road crossings of East Fork Negro Creek and its Class III tributaries. In fact, according to Table 4-20, a 107% increase in sediment yield is estimated to occur within this watershed as a result of the proposed road construction. This projected yield is the largest for all the watersheds in the project area, and seems to ignore the statement made on page 4-57 that *"Where increases in sediment yield exceed 100 percent, the change could be large enough to indicate that water quality standards may be exceeded."* The level of harvest proposed is even more puzzling in light of the fact that a fish pass was constructed in this watershed, indicating that the Forest Service has recognized the productive fisheries values that it provides, and has invested a significant amount of money to increase those values. Given the documented sensitivity to sediment production and stream channel stability, and the projected increases in sediment yield, the decision to harvest and road this watershed at the proposed levels seems highly questionable.

63.2

It is possible that the natural level of fines in East Fork Negro Creek and Robert Islands Creek could exceed Alaska State Water Quality Standards. Not coincidentally, the EIS suggests that this level of fines could currently limit fish production. An investigation should be made to determine if Water Quality Standards are already exceeded. If they are, then timber harvesting in the watersheds should not occur, unless site-specific studies demonstrate that the activity can be conducted without increasing the sediment in the stream substrate.

Responses to ADGC

Note	
	Enclosures with this letter include tables showing wholesale value by fish group and area from 1989 to 1994 and Port Houghton pink salmon catch and escapement which are included in the planning record.
63.1	Refer to response to comment 62.2.
63.2	Refer to response to comment 62.2.



Responses to ADGC

- 63.3 The roads will be maintained according to the prescribed maintenance level.
- 63.4 The need for open roads is based on monitoring, post-harvest silvicultural treatments, and enhancement projects, as well as future sales. Since publication of the Draft EIS, an additional sale has been identified for the project area as described in Chapter 2. Refer to Section 1.4.3.
- 63.5 The final decision for any cross-stream yarding would be determined at the time of final layout. The Forest Services recognizes ADEC's concern for use of this practice. If stream channel protection as described in BMP 13.16 cannot be achieved, cross stream yarding would not be implemented.
- 63.6 Goldbelt, Inc. is a private concern that follows different standards and guidelines for road building and unit harvesting than followed by the Forest Service. Irrespective of soil characteristic differences between the two areas, we do not anticipate any significant adverse environmental effects to water quality.

Port Houghton/Cape Fanshaw EIS D-120 DEIS Public Comments

If it is determined that Water Quality Standards are not exceeded, and that some level of harvest and/or road construction is possible, then a monitoring program should be established that is capable of detecting changes in substrate composition, particularly fines in the range of 0.1 to 4 mm. This monitoring should be done to: 1) track whether Water Quality Standards are exceeded, such that decisions can be made about continuing operations in these watersheds, and 2) provide information on the effectiveness of the mitigation measures (BMPs) used in these watersheds. ADEC discussed this issue with staff from the Petersburg Ranger District. It was agreed that ADEC and the Forest Service would visit these two watersheds this spring. We will attempt to determine if the sediment concerns noted in the DEIS are valid.

2. According to the Road Management Objectives for Alternative B (Appendix C, Table 1), 39.72 miles or 53% of all roads proposed under this alternative are scheduled to remain open with Maintenance Level 2. However, given the isolated nature of the Port Houghton/Cape Fanshaw project area, it is unrealistic to expect that these roads will be effectively maintained, let alone monitored, on a routine basis. This is especially true given the lack of maintenance funds and the extreme effort involved in mobilizing equipment for the maintenance of roads in such a remote location.

The need for open specified roads within this project area has not been established. According to the EIS (page 4-11), no future entries are planned within this area until at least 2010, and beyond which, *"the area would likely be reviewed at a future date and feasibility of logging would be assessed"* (page 4-33). In addition, on page 4-90, the statement is made that *"Beyond 2010, timber harvest plans are unknown."* Consequently, given the speculative nature of future entries into this area, and the apparent unrealistic objectives for road maintenance, all roads within the project area should either be effectively closed according to the requirements of 11 AAC 95.320, or they should be designed with the knowledge that maintenance is unlikely (e.g., armored dips placed near culverts, oversized culverts, etc.).

3. Cross-stream yarding is proposed for a number of units in the preferred alternative. We realize that the units have not yet been laid-out on the ground, but would like to express our concern for this practice, particularly where it is unclear whether full suspension is achievable. See site-specific unit comments for particular areas of concern to ADEC.

CLEAN WATER ACT SECTION 319 COMMENTS

1. Serious soils problems were encountered with timber harvesting and road construction at Hobart Bay (e.g., natural slope instability, and unstable soils such that road cuts and prisms fail). These problems contributed to several waterbodies within that area being considered for Clean Water Act Section 303D (TMDL) listing. The EIS did not discuss soils in sufficient detail or specificity to determine if such concerns exist for the Port Houghton area as well.



63.7	Windthrow to promote podzol formation is prescribed for the interior of some units with specific pre-existing conditions. This is not prescribed in or near riparian areas. This technique is being prescribed as an adaptive management approach to managing areas of cedar decline.
63.8	Bark deposition is discussed in Appendix L (Mitigation Measures) in that differences among alternatives concerning bark deposition are not significant enough to select one type of LTF over another. Bark deposition is also referred to considering maximum deposition amount. Mitigation (clean-up) could occur if amounts exceeded the regulatory threshold. Road monitoring (and potential subsequent closure) would occur if needed to protect soil resources, water quality, and big game (from excessive hunting pressure). Section 2.7.2 states that "Threshold limits are imposed on bark accumulation levels as a condition of permits." This information is provided to inform the reader that bark accumulation would be contained within acceptable limits. Similarly, road condition monitoring would occur to determine if the road is within acceptable limits or whether additional mitigation measures are needed.
63.9	Refer to response to comment 62.19.
63.10	Due to the size of the project area and the difficulty in unit numbering, the interdisciplinary team concluded that adding streams and watershed boundaries to the alternative maps would result in the map becoming illegible. The objective of these maps was to make the activities associated with each alternative as clear as possible. The alternative maps in the EIS are not intended to provide a basis for independent analysis by the reader. To accommodate your request, the need is for a map larger in size. A larger map that includes the attributes you desire could be produced on special request. Larger scale maps are available in the planning record and individual unit cards have site specific information.

Adding channel type process to the stream classes would be difficult as the stream classes would already result in three colors. Your agency would be better off requesting the channel type process map directly from the Forest Service at the scale you prefer. More detailed information on water resources is included in the planning record.

ADEC discussed this concern with the Petersburg District soil scientist. We were informed that conditions in the project area differ from those at Hobart Bay.

2. Mitigation: The management prescription of promoting windthrow as a means to prevent podzol formation has been identified on page 2-32 of the EIS as a mitigation measure. However, such a prescription is not "mitigation" in the true sense of the word. In fact, it may require its own set of mitigation measures to prevent or minimize potential impacts associated with slope failure and water quality degradation. We feel that this prescription is not appropriate around riparian areas unless a detailed analysis shows that input of fine and/or coarse sediments would be beneficial to the stream system. See site-specific unit comments for specific areas where this prescription is proposed, and where ADEC has concerns about its application.

According to Appendix A (page 6), the benefits of this prescription are hypothetical and not proven. In addition, it is not being prescribed to mitigate the environmental effects of management activities associated with this timber sale. Therefore, this practice should not be identified as mitigation, but rather, as an experimental treatment for which mitigation for slope stability and water quality will be required. It also should be prescribed on only a limited basis that is sufficient enough to draw conclusions regarding the effectiveness of the treatment in preventing podzol formation.

Similarly, bark deposition and road condition monitoring are identified as mitigation measures. The former is, in fact, permit compliance monitoring, and the latter is implementation and/or effectiveness monitoring. Both could lead to mitigation, but should not be considered as mitigation unless plans are in place that require specific measures to be implemented if specified threshold levels are reached.

3. Monitoring plan: ADEC agrees that BMP monitoring occurs on an on-going basis. However, we would like to know if any attempt was made to identify effectiveness monitoring issues included in the Stikine Area effectiveness monitoring strategy that could be addressed on the Port Houghton project area. It is important that the strategy be looked at during the initial phases of project planning, since some effectiveness monitoring issues that the strategy proposes to address require data collection before timber harvest or road construction.

#### NEPA COMMENTS

1. Maps: In addition to the lack of topographic features, the maps contained in this EIS, including the Project Area map, the alternative maps, the road card maps, and the stream classification map (Figure 3-4), each display different kinds of information which, collectively, are important and essential in determining the overall scope and potential impacts of the project, but individually, are difficult to use and are of little value by themselves. For example, without including the stream classifications and watershed boundaries, the alternative maps are essentially black lines and colored blocks on a white background. Consequently, they are of little use in assessing potential watershed effects, especially within those watersheds determined to be sensitive in terms of sediment yield (e.g., East Fork Negro Creek, West Fork Negro Creek, and



Robert Islands Creek). Compounding this problem is the fact that the stream classification map and the alternative maps were developed using different map scales, such that overlaying both, on a light table, for example, is not possible.

Therefore, we request that the alternative maps for the FEIS display at least the following kinds of information: 1) topographic features (contour lines -- 500' interval is acceptable, although 100' is preferred), 2) watershed boundaries and stream classifications, 3) proposed units and LTFs, and 4) roads, including a graphic depiction of which are proposed to remain open or are scheduled to be closed upon completion of the timber sale.

2. Watershed Descriptions: We appreciated the inclusion of the narrative watershed descriptions that are presented on pages 3-47 through 3-56 of the EIS. They were useful in providing an indication of existing conditions and the overall physiographic and hydrologic characteristics of the watersheds, as well as the types of fish habitat they provide. However, as indicated above, this information would have been most useful if the watershed boundaries and stream classifications were overlaid on the alternative maps to identify the locations of the units and roads relative to the watersheds being discussed. In addition, the channel type process groups could have been identified for all streams depicted on the unit card maps.

Also, while we appreciate the information on natural levels of sedimentation given in the narrative watershed descriptions, it would have been helpful to have had more detailed information to review prior to the release of the DEIS. We requested such information in our scoping comments (3/8/95) but did not receive it.

#### SITE-SPECIFIC COMMENTS

##### A. Units

The following comments collectively address ACMP, Section 319, and NEPA concerns, with ACMP standards cited, where applicable, within or following our discussion of each unit. As many of these units each present several different concerns, we have categorized them as follows:

##### 1. Units with water quality concerns relative to slope stability and blowdown of reserve trees:

Unit 159: This unit has a high windthrow risk and is prescribed for a shelterwood cut with reserves in order to promote blowdown of the retained trees as part of the soil mixing, podzolization prevention experiment. However, according to the unit card, over half the unit is rated as having a high risk of mass failure and "*Instability is evident along drainages in the steeper portions of the unit.*" In addition, although blowdown is to be encouraged on high mass failure risk soils, no Soils/Geology report is included in the unit card narrative to document what, if any, mitigation measures are proposed to minimize the risk of slope failure.

Given the combination of a high windthrow risk and a high mass failure risk, we question the appropriateness of including this unit in the windthrow/soil mixing experiment. AS

#### Responses to ADGC

63.11 The fisheries resource reports have been provided to ADEC. Fisheries resource reports are also available in the planning record.

63.12 This unit will be reevaluated during timber sale layout by a soil scientist with the intent to place reserve trees in areas without windthrow risk. If this is not possible, then the unit would be clearcut.



Responses to ADGC

41.17.060(b)(5) and (c)(5) state, respectively, "significant adverse effects of soil erosion and mass wasting on water quality and fish habitat shall be prevented or minimized" [(b)(5)], and "there may not be significant impairment of the productivity of the land and water with respect to renewable resources" [(c)(5)]. Given the objectives for this unit and the silvicultural prescription that is proposed, a significantly high potential exists that these standards will not be met. Therefore, the harvest prescription should be changed to one which minimizes the risks of blowdown as much as possible, or the unit should be dropped from harvest consideration.

Unit 164: This unit is also prescribed for a shelterwood cut with reserves in order to promote windthrow. While slope stability appears to be less of a concern, the presence of two Class III V-notch streams presents significant concerns for water quality, especially since these streams are directly tributary to Class II habitat located immediately adjacent to and downstream of the lower unit boundary. Although split-line yarding is prescribed to protect these streams, V-notch sideslope stability may be significantly compromised by the proposed and anticipated windthrow within the unit. Therefore, it is essential that the riparian areas of these streams be excluded from the proposed windthrow treatment. Instead, these areas should be selectively harvested to retain only the most windfirm trees, including all smaller diameter, non-merchantable trees with short, open crowns that do not extend above the slope break of the notch. [AS 41.17.060(b)(5) and (c)(5)]

Unit 62: This 126 acre unit is located within the East Fork Negro Creek watershed (#331) which, according to the EIS (page 3-45), is the most sensitive of all the inventoried watersheds in the project area in terms of stream channel stability and sediment production. More specifically, it is located immediately adjacent to and upslope of the Class I mainstem of East Fork Negro Creek which, according to the unit card, provides "excellent fish habitat." Of particular concern is the fact that this unit has been given both high windthrow and high mass failure risk ratings and, for the most part, is proposed for downhill yarding. Although the unit card is unclear as to whether full suspension or partial suspension will be employed, it is essential that full suspension be achieved during yarding operations to minimize the risk of mass failure and associated impacts to the water quality and fish habitat of East Fork Negro Creek. [11 AAC 95.360(a)]

In addition, an unspecified portion of the unit is prescribed for a shelterwood cut with reserve trees to promote blowdown ("Reserve trees utilized in the selected alternatives will provide wildlife habitat as well as a source of blowdown for ecological functioning"). As with Unit 159, the combination of a high windthrow risk and a high mass failure risk should preclude such a prescription for this unit, especially given its close proximity to the productive fish habitat of East Fork Negro Creek. [AS 41.17.060(b)(5) and (c)(5)]

According to the unit card, "Seven Class 3 streams bisect the stand" and have been recommended for split-line yarding or full suspension. However, no streams are depicted within the unit on the unit card map. This needs to be changed prior to developing the FEIS/ROD, especially if the unit cards are the "blueprints" to be followed by the purchaser/operator.

63.13 Refer to revisions to this unit summary card. The riparian areas are excluded from windthrow treatment, and would be selectively harvested to retain windfirm trees.

63.14 Partial suspension is achievable. Buffers would be left along streams in accordance with TTRA and Forest Plan standards and guidelines. They would not be exposed to the prevailing wind as the buffer strip would be located in a gentle valley floor.

63.15 Refer to revisions to this unit summary card.

63.16 Refer to revisions to this unit summary card.



2. Units with water quality concerns relative to cross-stream varding and/or blowdown of Class III riparian areas:

63.17

Unit 169: Two Class III V-notches bisect this unit and become "Excellent Class 2 fish habitat" immediately adjacent to and downstream of the lower unit boundary. According to the unit card, these streams are proposed for no-cut buffers, within which "Blowdown is expected to occur." In addition to being extremely unusual, such a prescription essentially promotes water quality degradation and impacts to downstream fish habitat through the introduction of sediment from windthrown rootwads and destabilized V-notch sideslopes. This, clearly, is inconsistent with AS 41.17.060(b)(5) which states "significant adverse effects of soil erosion and mass wasting on water quality and fish habitat shall be prevented or minimized." In addition, it may not comply with the State Water Quality Standards for turbidity and sediment. To more effectively ensure the protection of water quality and downstream fish habitat, timber should be directionally felled and yarded away from these V-notches, with all small diameter, non-merchantable trees retained for V-notch sideslope stability.

63.18

Unit 153: A Class III stream forms the northeastern boundary of this unit and is directly tributary to Class II habitat located a short distance downstream. According to the unit card, "The northeast boundary was modified to exclude the potentially unstable v-notch." However, it appears that this modification will result in the retention of a slope break buffer along the southern side of this notch. The unit card indicates that "Windthrow is a management concern" and that "windthrow potential of leave trees is high." Consequently, given this buffer's orientation to prevailing storm winds, it will be highly susceptible to blowing down into the unstable notch and stream that it was intended to protect. Rather than retaining a "hard edge" between the unit and the notch, this buffer should be selectively harvested to retain only small diameter, non-merchantable trees with short, open crowns that do not extend above the slope break. [AS 41.17.060(b)(5)]

63.19

Unit 160: A potentially temperature-sensitive V-notch Class III channel flows through the south-central portion of this unit in an easterly direction and becomes Class II habitat at the lower unit boundary. According to the unit card, a "no cut buffer" of unspecified width is proposed to be retained along this notch. However, given its west to east orientation, this buffer will be highly prone to blowing down into the stream following the adjacent clearcut harvesting. As this Class III reach directly influences the water quality and habitat integrity of the Class II reach located immediately downstream, it should be excluded from harvest activities by relocating the southern unit boundary to the north side of the stream. Another, though less desirable, alternative is to maintain the unit boundary as is, and selectively harvest the V-notch buffer to retain only the most windfirm trees, including those of smaller diameter, and all non-merchantable trees with short, open crowns that do not extend above the slope break. [AS 41.17.060(b)(5)].

63.20

Unit 163: This unit is proposed for a shelterwood cut with reserves in order to promote blowdown and soil mixing. A Class III V-notch forms the northwest boundary of the unit and, according to the unit card, will have "50 percent of the shade producing vegetation" retained along its banks. Given its orientation to the prevailing storm winds, it is essential that the

Responses to ADGC

- |       |   |
|-------|---|
| 63.17 | Refer to revisions to this unit summary card. |
| 63.18 | Refer to revisions to this unit summary card. |
| 63.19 | Refer to revisions to this unit summary card. |
| 63.20 | Refer to revisions to this unit summary card. |



retained vegetation be windfirm and consist primarily of small diameter, non-merchantable trees with short, open crowns that do not extend above the slope break of the notch. This stream is eventually tributary to Class I habitat located downstream of the 6130 Road and, therefore, it is especially important that the potential for sedimentation, such as that associated with riparian windthrow, be minimized. [AS 41.17.060(b)(5)]

We are also somewhat concerned with the proposed no-cut buffer on a portion of the Class III stream located in the southeastern portion of the unit. However, given this stream's northwest to southeast direction of flow, it appears that this buffer will be less susceptible to blowdown than the retained trees along the V-notch at the northwest boundary of the unit.

Unit 125: According to the unit card, the unit boundary has been adjusted to exclude the Class III stream which borders the unit on the north. However, in doing so, it appears that a slope break buffer will be retained between the unit and the stream. Given the buffer's orientation to southerly storm winds, it will be highly susceptible to windthrow and associated impacts to the water quality within this stream as well as the Class II habitat to which it is tributary. This is especially true given the fact that the unit has been rated with a high windthrow risk and a high mass failure risk. Rather than retaining a "hard edge" along this stream, this buffer should be selectively harvested to retain only the most windfirm trees. [AS 41.17.060(b)(5)]

Unit 167: It appears that a slope break buffer will be retained along the Class III stream that forms the northern boundary of this unit, although no mention of this stream was made in the unit card narrative. As this stream is directly tributary to Class II habitat located a short distance downstream, it is essential that windthrow and associated sedimentation be prevented or minimized. As indicated for other units with slope break buffers where windthrow is a concern, this buffer should be selectively harvested to retain only the most windfirm trees. [AS 41.17.060(b)(5)]

Unit 76: As depicted on the unit card map, the northern boundary of this unit occurs in close proximity to a Class III stream that transitions to Class II habitat a short distance downstream. Given its orientation to the prevailing storm winds, this portion of the unit boundary will be highly susceptible to windthrow and associated impacts to downstream water quality following the adjacent clearcut harvesting. Therefore, this small, wedge-shaped portion of the unit should be deleted to provide a wider, more windfirm stand of trees between the unit and the stream. [AS 41.17.060(b)(5)]

Unit 151: A Class III stream bisects this unit and is directly tributary to Class II habitat located immediately adjacent to the lower unit boundary. Downhill high lead yarding is proposed to complete the harvest of the riparian area of this stream above the 6130 Road. However, as depicted on the unit card map, the proposed landing locations will not provide for split-line yarding away from this stream, but rather, will require cross-stream and down-stream yarding to Landing #1. This raises significant concerns for stream bank stability and water quality, as conventional high lead cable yarding is incapable of achieving full suspension. No specific stream course protection measures are prescribed for this stream in the unit card narrative; the

Responses to ADGC

- 63.21 Refer to revisions to this unit summary card.
- 63.22 Refer to revisions to this unit summary card.
- 63.23 Refer to revisions to this unit summary card.
- 63.24 Split-yarding at the Class 3 stream is proposed on the unit summary card, and may be readily achieved.

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Responses to ADGC

Refer to revisions to this unit summary card.

The unit boundary in question is located at the edge of a V-notch that is mostly poorly stocked and, therefore, not especially prone to windthrow. Any adjustments needed to this boundary will be made during final layout.

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only mention made is "Class III stream designated for protection." Given the setting boundaries and the yarding method, however, we question what this protection would entail. At a minimum, the setting boundaries must be adjusted to provide for split-line yarding and directional felling of timber away from this stream. This is especially important given the stream's direct influence on the Class II habitat to which it is tributary. 11 AAC 95.360(a) requires that "During yarding, an operator shall keep a log fully suspended above or yarded away from surface waters where feasible . . ." In addition, 11 AAC 95.345(b)(1) states "when choosing the site of a landing, an operator shall consider the effects of landing location and provide for a logging layout that will reduce the overall adverse effects of the operation."

Unit 144: Two Class III V-notches occur within this unit and are directly tributary to Class II habitat located immediately adjacent to and downstream of the lower unit boundary. As depicted on the unit card map, the proposed landing will require cross-stream and down-stream yarding of both of these channels to complete the harvest of this unit. However, no specific or consistent stream course protection measures are described for these streams in the unit card narrative. For example, the Fisheries/Watershed report doesn't even acknowledge the existence of these streams and, although the Soil, Water, and Wildlife Conservation section calls for "full suspension on Class 3 in unit," the Integrated Resource Objectives section states "Skyline with Partial Suspension; Full Suspension not feasible" (emphasis added).

If full suspension is, in fact, "not feasible," then additional landings must be established to accommodate split-line yarding away from these streams during harvest operations. As indicated above, 11 AAC 95.360(a) requires that "During yarding, an operator shall keep a log fully suspended above or yarded away from surface waters where feasible . . ." This is especially important within this unit given the V-notch channel characteristics and the fact that these streams are directly tributary to Class II habitat located a short distance downstream.

Unit 131: According to the unit card narrative, and as depicted on the unit card map, "The west boundary [of the unit] buffers a large Class 3 stream" which is directly tributary to Class II habitat located a short distance downstream. Although the width of this buffer was not specified and appears variable, that portion bordering approximately the northern half of the unit appears to be very narrow and resembles a slope break buffer. Such a buffer in this location will be highly prone to blowing down and impacting the large Class III V-notch. This is especially true given the fact that this unit has been assigned a high windthrow risk rating.

Given the indicated large size of this notch, and its potential instability, the unit boundary should be relocated farther east (eliminating setting #4) to provide a larger, more windfirm buffer between the unit and the notch. This would better minimize the risk of windthrow and would more effectively ensure V-notch sideslope stability and the maintenance of water quality. [AS 41.17.060(b)(5)]

In addition to the windthrow concern, according to the unit card map, setting #6 will involve cross-stream yarding of a Class III stream directly upstream of Class II fish habitat. Although the Fisheries/Watershed report recommends split-yarding or full suspension on this stream, the

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Integrated Resource Objectives section states *"Skyline with One End Suspension"* (emphasis added). If full suspension cannot be achieved on this stream, then an additional landing must be established on the east side of the stream to provide for split-line yarding. Again, 11 AAC 95.360(a) requires that **"During yarding, an operator shall keep a log fully suspended above or yarded away from surface waters where feasible . . ."** This is especially important along this stream given the close proximity to resident fish habitat.

Unit 168: Three Class III streams flow through this unit and are directly tributary to Class II habitat located immediately downstream of the lower unit boundary. As depicted on the unit card map, all five yarding settings proposed for this unit will require cross-stream yarding of each of these Class III V-notches. According to the unit card, *"One end suspension [is] required with full suspension over two major Class 3 streams within unit."* However, to effectively minimize impacts to stream bank stability and water quality, and to fully comply with the requirement of 11 AAC 95.360(a), all three of these streams must either be fully suspended over or split-lined away from during yarding operations. This is especially important given their close proximity to the Class II habitat to which they are tributary.

Unit 88: This unit is located within the Robert Islands Creek watershed (#321), in which, according to the EIS (page 3-50), *"natural sedimentation may limit fish productivity in some areas of the watershed."* As depicted on the unit card map, setting #1 will require cross-stream yarding of, what appears to be, a significant Class III stream that becomes Class II habitat at and downstream of the lower unit boundary. According to the Fisheries/Watershed section of the unit card, *"Creeks are fed by several small high gradient channels in which there is high erosion potential."* Although the unit card recommends the addition *"of a second landing, if feasible, in northern setting to accomplish split yarding on this area,"* no such landing has been added. Given the inherent sensitivity of this watershed to sediment delivery, it is essential that an additional landing be established on the northwest side of this stream to facilitate split-line yarding. If, for some reason, this is not feasible, then the logs must be fully suspended over the stream to prevent impacts to stream bank stability and water quality. [11 AAC 95.360(a)]

Unit 141: This unit is also located within the Robert Islands Creek watershed. According to the unit card, a buffer of unspecified width (appears to be a slope break buffer) will be retained along the *"large, high gradient Class 3 v-notch stream which becomes a Class 2 tributary [to Robert Islands Creek] on the lower slope."* However, given this buffer's perpendicular direction to prevailing storm winds, it will very likely suffer windthrow which may destabilize the V-notch and contribute to water quality degradation of downstream fish habitat through the introduction of sediment. As indicated for other units where windthrow of slope break buffers is a concern, this buffer should be selectively harvested to retain only the most windfirm trees, including those of smaller diameter with short, open crowns that do not appreciably extend above the slope break. [AS 41.17.060(b)(5)]

In addition, as depicted on the unit card map, the upper reaches of this stream within the northwest corner of the unit will be cross-stream yarded with only partial (*"one end"*) suspension to Landing #1 on the 84984 Road. Without achieving full suspension, this V-notch will be

Responses to ADGC

63.27	Full suspension or split yarding at Class III streams in question will be implemented, if feasible, to mitigate these concerns. The layout will accommodate additional landings, if necessary.
63.28	Full suspension or split yarding at Class III streams in question will be implemented, if feasible, to mitigate these concerns. The layout will accommodate additional landings, if necessary.
63.29	Refer to revisions to this unit summary card.
63.30	Refer to revisions to this unit summary card.

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Responses to ADGC

- 63.31 Refer to revisions to this unit summary card.
- 63.32 No yarding across the stream in question is proposed. Through sideblocking and judicious selection of tailholds, the piece of timber in question can be yarded to Landing 1. The necessary sideblocking may be readily achieved through the use of the North Bend system.
- 63.33 Refer to revisions to this unit summary card.
- 63.34 Refer to revisions to this unit summary card.

progressively impacted with each turn of incoming logs. This is unacceptable and can easily be avoided by establishing a temporary landing on the 84984 Road at the northwest corner of the unit. This would provide for split-line yarding along this stream and avoid the impacts associated with cross-stream yarding. [11 AAC 95.360(a)]

**Unit 147:** A Class III V-notch channel bisects this unit and is directly tributary to the Class II habitat of Robert Islands Creek located immediately adjacent to the lower unit boundary. According to the unit card, a no-cut buffer of unspecified width is proposed to be retained along this stream. However, given the stream's southwest to northeast orientation, this buffer will be highly prone to windthrow, which may impact the water quality and fish habitat of Robert Islands Creek. Consequently, the same selective harvesting treatment discussed above should be applied within this buffer to more effectively reduce the potential for windthrow and associated impacts to water quality. [AS 41.17.060(b)(5)]

This stream establishes the setting boundary between Landings 1 and 2 and, although the unit card indicates that it will be split-lined, it is apparent that cross-stream yarding will be required to access that portion of the unit on the north side of the stream that is incapable of being yarded to Landing #1 due to the configuration of the unit. No suspension objectives were included in the unit card; however, if cross-stream yarding is to occur, then full suspension must be assured to effectively minimize impacts to stream bank stability and water quality. [11 AAC 95.360(a)]

**Unit 81:** This unit is located within the West Fork Negro Creek watershed (#322), in which, according to the EIS (page 3-51), "*natural sedimentation may limit fish productivity in some areas of the watershed.*" Although the unit card narrative states "*Split yard and suspend logs over class III streams,*" as depicted on the unit card map, the proposed landing locations and setting boundaries will not provide for split-line yarding along the two Class III streams that flow through the unit and are directly tributary to the adjacent Class II habitat of West Fork Negro Creek. In addition, "*One end suspension*" is prescribed in the Integrated Resource Objectives section, indicating that full suspension will not be achieved during the cross-stream yarding of these streams. Given the inherent sensitivity of this watershed to sediment delivery, it is essential that additional landings be established to facilitate split-line yarding. If, for some reason, this is not feasible, then the logs must be fully suspended over these streams to prevent impacts to stream bank stability and sedimentation of downstream resident fish habitat within West Fork Negro Creek. [11 AAC 95.360(a)]

In addition to the proposed cross-stream yarding, it appears that a slope break buffer is prescribed for the Class III V-notch channel which forms the northern boundary of the unit and is, likewise, tributary to the adjacent Class II habitat of West Fork Negro Creek. The same selective harvesting treatment that we have described for similar Class III slope break buffers should be applied here to minimize the potential for windthrow and associated impacts to water quality and downstream fish habitat. [AS 41.17.060(b)(5)]



- 63.35 Refer to revisions to this unit summary card.
- 63.36 Refer to revisions to this unit summary card.
- 63.37 Refer to revisions to this unit summary card.
- 63.38 Refer to revisions to this unit summary card.

Unit 67: Two Class III V-notch channels flow through this unit and converge at the lower unit boundary just before entering the Class II habitat of West Fork Negro Creek. Although split-lining is proposed for the main V-notch which bisects the unit, cross-stream yarding will occur on the other notch to retrieve timber from the northeastern portion of the unit. The unit card states *"Split yard away from V-notch in center of unit between settings. Suspend logs over the other small V-notch as much as possible."* However, the Integrated Resource Objectives section requires only partial (*"One end suspension"*) during yarding operations. Given the close proximity of this stream to the Class II habitat of West Fork Negro Creek, it is essential that either full suspension be achieved or that an additional landing be established near the northern unit boundary to enable split-line yarding away from this stream. [11 AAC 95.360(a)]

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Unit 92: This unit is located in the East Fork Negro Creek watershed, directly south of Unit 62. As depicted on the unit card map, four Class III V-notches originate within the unit and are directly tributary to the Class I habitat (as identified on Figure 3-4) of the mainstem of East Fork Negro Creek. Although the unit card narrative indicates that split-line yarding will be employed along each of these streams, according to the unit card map, the landing locations and setting boundaries will require cross-stream and up-stream yarding within settings 4, 6, 7, and 8. No indication was provided as to the suspension objectives for this unit. However, if these setting boundaries are correct, and if full suspension will not be achieved, then additional settings must be established to provide for split-line yarding along each of these streams. This is especially important given their close proximity to and direct influence on the Class I habitat of East Fork Negro Creek. [11 AAC 95.360(a)]

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This unit has been given a high windthrow risk rating and is prescribed for a shelterwood cut with reserves in order to provide a *"source of blowdown for ecological functioning."* However, such blowdown in the riparian areas of the four Class III V-notches (which are oriented perpendicularly to the prevailing storm winds) could result in significant, and potentially chronic sediment delivery to the Class I habitat of East Fork Negro Creek. Therefore, as with Unit 164, it is essential that the riparian areas of these streams be excluded from the proposed windthrow treatment. Instead, these areas should be selectively harvested to retain only the most windfirm trees, including all smaller diameter, non-merchantable trees with short, open crowns that do not extend above the slope break of the notch. [AS 41.17.060(b)(5)]

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Unit 112: According to the unit card map, a Class III stream flows through the southwest corner of this unit and is tributary to the Class II (?) habitat of the upper reaches of East Fork Negro Creek. As laid-out, the setting for this portion of the unit will require cross-stream yarding of this tributary to retrieve timber from a very small corner of the unit. Unless full suspension can be assured when yarding across this stream, the unit boundary should be relocated to the northeast side of the stream to avoid impacts to stream bank stability and downstream water quality. This is especially important as, according to the EIS (page 3-50), the headwater streams within this most sensitive watershed *"are high gradient channel types"* that *"are relatively straight and show evidence of substantial mass wasting, bank cutting, pool filling, and deposition."* [11 AAC 95.360(a) and 11 AAC 95.345(b)(1)]

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This unit has also been prescribed for a shelterwood cut with reserves in order to promote windthrow. According to the unit card, *"reserve trees are selected from green cull volume".... "Many of these cull reserve trees will blow down, providing important soil functions and a seedbed for spruce."* However, given the unit's high windthrow risk rating and, more importantly, its high mass failure risk rating, it does not appear appropriate to apply such a prescription in this location, especially given the unit's proximity to the sensitive upper reach of East Fork Negro Creek. As with Unit 159, the harvest prescription should be changed to one which minimizes the risks of blowdown as much as possible, or else settings 2 and 3 should be dropped from harvest consideration altogether. [AS 41.17.060(b)(5) and (c)(5)]

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63.39 Refer to revisions to this unit summary card.  
63.40 Refer to revisions to this unit summary card.  
63.41 Refer to revisions to this unit summary card.  
63.42 Refer to revisions to this unit summary card.  
63.43 Refer to revisions to this unit summary card.

Unit 105: A Class III stream bisects the western portion of this unit and becomes the Class II habitat of the western branch of East Fork Negro Creek a short distance downstream of the lower unit boundary. According to the unit card map, cross-stream yarding will be required over the entire length of this stream to access timber in the western portion of the unit. As with Unit 112, if full suspension cannot be assured over this stream, then the unit boundary should be relocated to the east side of the stream to avoid potential impacts to bank stability and downstream water quality. [11 AAC 95.345(b)(1) and 11 AAC 95.360(a)]

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Unit 117: Two Class III streams originate within this unit and are directly tributary to the productive Class I habitat of Walter Island Creek located downstream of the lower unit boundary. As depicted on the unit card map, the landing locations and setting boundaries will require cross-stream yarding of both of these streams. Given their direct influence on the water quality of Walter Island Creek, either full suspension must be assured, or additional landings must be established to provide for split-line yarding of timber away from these streams during harvest operations. [11 AAC 95.360(a)]

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Unit 3: As depicted on the unit card map, the setting boundary for Landing #5 will require cross-stream yarding of a Class III stream directly above its transition to Class II habitat. No indication of the existence of this stream, nor of the stream course protection measures are provided in the unit card narrative. However, unless full suspension can be assured, an additional landing, or modifications to the existing setting boundaries must be made to provide for split-line yarding along this stream. [11 AAC 95.360(a)]

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Unit 24: The northern portion of this unit encompasses a section of Class III stream that will require cross-stream yarding to Landing #1. This stream transitions to Class II habitat immediately downstream of the proposed cross-stream yarding location. As only a small wedge of timber will be obtained from the north side of this stream, the unit boundary should be relocated to the south side to avoid impacting the stream altogether. [11 AAC 95.345(b)(1)]

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## B. Roads

Several ACMP-related concerns involving the location of road alignments were noted in our review of the unit and road cards for this EIS. These concerns focus primarily on riparian areas and are summarized as follows:



63.44	<p>1. <u>Road segments with angled (non-perpendicular) crossings of Class I and II streams</u></p> <p><u>8496 Road:</u> Angled stream crossings are proposed in the following locations: Class II stream just south of Unit 111; Class I stream adjacent to Unit 33 (just south of the Little Lagoon LTF site); and Class II stream adjacent to and west of Unit 37.</p> <p><u>8495 Road:</u> Angled stream crossing is proposed on a Class I stream just east of Unit 52.</p> <p><u>8489 Road:</u> Angled stream crossing is proposed on a Class II stream adjacent to Unit 8.</p> <p>According to the topographic features depicted on the unit card maps, these angled crossings are proposed in areas of relatively gentle relief that do not appear to restrict the development of less intrusive perpendicular stream crossings. No reasons for the orientation of these alignments are given in the road card narratives. However, 11 AAC 95.285(a)(7) requires that "where feasible, cross a stream at a right angle to the stream channel." Therefore, to be consistent with this requirement, these crossings must be adjusted accordingly to minimize the footprint of the crossing structures and associated fill on the respective riparian areas and stream channels.</p> <p>2. <u>Road segments that encroach upon TTRA stream buffers</u></p> <p><u>8496 Road:</u> This road accesses only two units and encroaches upon and traverses through the buffer of a Class II stream immediately adjacent to and east of Unit 161. The road card states "Angled traverses in the buffer were required to maintain minimum standards for grade &amp; alignment on the mainline." It is unclear, however, if this statement applies to this relatively short (1.4 mile) spur off the mainline as, according to the unit card map, the topography at this location does not appear to prevent locating the alignment outside of the riparian buffer.</p> <p><u>8489 Road:</u> This road occurs in the North Shore area and substantially encroaches upon and traverses through the riparian buffer of a Class II stream immediately adjacent to and south of Unit 8 near the border with Goldbelt lands. According to the unit card map, this segment of the alignment occurs in extremely close proximity to the stream channel, such that right-of-way clearing would virtually eliminate any semblance of an effective riparian buffer at this location. No mention of this riparian alignment was made in the road card narrative.</p> <p>11 AAC 95.285(b) states "A road may not be located in a riparian area except where access is needed to a water body crossing, or where there is no feasible alternative." The elimination of substantial portions of Class II stream buffers for right-of-way clearing is significant, and the rationale for doing so must be clearly stated in the EIS. If not already done, alternative alignments which avoid these buffers altogether must be investigated prior to development of the FEIS and ROD.</p>	<p>63.44 At this map scale, the skewedness of a stream crossing should not be taken literally. The crossings in question are located as perpendicularly as practicable to the streams, taking into account terrain features found in the field.</p> <p>63.45 The comment was in reference to the 8496 road and not the spur road.</p> <p>63.46 Road 8489, near units 381135 and 381133 includes three stream crossings, and encroaches on a stream buffer at the southeast corner of unit 381133. The road is immediately west of a stream buffer along the east side of unit 381133. Buffer encroachment at the south corner of unit 381133 is described in the road card.</p> <p>63.47 The possibility of locating the road further downstream below the confluence was considered. It involved additional length of road, most of it through muskeg. The stream is more incised below the confluence, so that more earthwork within the buffer and a non-perpendicular crossing would be required. The crossings on the route flagged are approximately perpendicular to the streams and involve negligible earthwork.</p>
63.47	<p>3. <u>Unnecessary Stream Crossings</u></p> <p>That portion of the 84954 Road adjacent to and northeast of Unit 86 angles across two Class II</p>	<p>Port Houghton/Cape Fanshaw EIS</p> <p>D-131</p> <p>DEIS Public Comments</p>



streams a short distance upstream of their confluence into one channel. According to the topographic features on the unit card map, the terrain in this area is of gentle relief and does not appear to restrict the location of the road alignment. In addition, the road card states "*Location largely on flats and benches ....*" Therefore, it appears that these two crossings can easily be avoided simply by relocating the alignment so that it parallels the western Class II buffer and extends downstream to a location that will require a single crossing of the main channel below the confluence of the two streams. Such an alternative alignment must be established in order to be consistent with 11 AAC 95.285(a)(6) which requires that the number of stream crossings be minimized.

ADEC appreciates the opportunity to comment.



DEPARTMENT OF FISH AND GAME  
Phil Mooney, Area Habitat Biologist  
Division of Habitat and Restoration

The Alaska Department of Fish and Game (ADF&G) appreciates the opportunity to review the Forest Service's (FS) request for comments for the Port Houghton/Cape Fanshaw Timber Sale Draft Environmental Impact Statement (DEIS), which will direct timber harvest within the project area. The project area is located on the mainland of southeast Alaska between Port Houghton and Farragut Bay and eastward to about Glory Lake. In this DEIS the Forest Service's Chatham and Stikine Areas propose to harvest 123 million board feet (net sawlog volume) of timber over approximately 5, 400 to 7,200 acres beginning in 1998.

PRELIMINARY ACMP ISSUES

Fish and wildlife and their habitat are coastal resources affected by timber sale activities. ADF&G has the following concerns regarding impacts to these coastal resources by this proposed activity:

Wildlife Concerns

ADF&G, as manager of wildlife populations on the Tongass National Forest, would like to request that the FS provide retention of old growth habitat sufficient to ensure the maintenance of both viable and huntable wildlife populations. ADF&G continues to emphasize the importance of the Sandborn Canal area to wildlife. ADF&G continues to recommend the deferral of logging and roading in this area. Mountain goat winter range, the location of which is currently limited and serves small, isolated populations needs to be protected and retained from timber harvest as well as road construction. See NEPA Comments.

To help ensure that the activity is consistent with ACMP standards, ADF&G requested that maps be produced from the TLMP Revision wildlife habitat capability models showing areas rated as HSI of 0.5 or greater for marten, land otter, black bear, wolf, Canada geese, and bald eagle. Given the regional nature of the wildlife models and their lack of site-specific environmental factors (e.g. microclimates), site-specific habitat and wildlife information should continue to be collected in the field to help identify important habitat areas to be managed for the production of wildlife. The habitat maps produced from the regional models should be used as a means of stratifying where the field reviews are conducted to refine the delineation of the most important habitats. State wildlife concerns can best be addressed by evaluating stands and their habitat values through field reviews and consultation with ADF&G.

Fisheries Concerns and Marine Resources

The ADF&G has documented catch statistics for finfish and shellfish in the project area. Harvest data are available for king, tanner and dungeness crab, shrimp, salmon and herring. Various kinds of stock assessment, escapement and survey information have been collected for these fisheries resources.

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Refer to revisions to Section 4.3 of the Revised DEIS for a discussions of viable populations. Refer to response to comment 18.2. Road management objectives have been incorporated into the alternatives to mitigate potential effects of roads on mountain goats and specific units have been dropped from consideration because of mountain goat winter range concerns. Any additional mitigation measures proposed will be considered and described in the ROD if adopted.

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The wildlife resource inventory report (which included color maps of the MIS habitat capability models) was provided to ADF&G. These models show marginal (HSI greater than 0.3) and suitable (HSI greater than 0.7) habitat for these species. Site specific information was gathered during field surveys in 1994.

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Comment noted.

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Responses to ADGC

63.51	Appropriate information provided by ADF&G on commercial fisheries has been added to Section 3.2 of the Revised DEIS.
63.52	Refer to revisions to Section 3.5 of the Revised DEIS for inclusion of pink salmon escapement.
63.53	Sufficient information is available for an informed decision. The selection of LTF sites was based on the ATTF guidelines and input from agencies involved in issuing LTF permits. The extent of potential crab habitat that could be impacted by the project is described in Section 4.2 of the Revised DEIS.
63.54	Refer to responses to comments 3.3, 10.2, and 12.2.

The Sandborn VCU is extremely valuable for both wildlife and fisheries. With an estimated total escapement of over 350,000 anadromous fish, the system of streams flowing into the Canal is the most productive for its size on the mainland and one of the most productive in all of southeast Alaska.

The Port Houghton Salt Chuck and Glen Creek areas in VCU 79 are also extraordinary wildlife and fisheries habitats. "Rusty River" which flows in the Salt Chuck, and Glen Creek, which enters Port Houghton just outside the entrance to the chuck have an estimated combined total escapement of more than half a million salmon.

**Commercial Fisheries and Marine Resources**

The salmon resources of Port Houghton are very important to the commercial trollers and seiners who fish in northern southeast. There are three major salmon producing systems in the Port Houghton area; the river at the head of the salt chuck (Rusty River), the stream at the head of the port, (Glen Creek) and Sandborn River in Sandborn Canal. Additionally there are two medium sized streams along the southern shore (Roberts Island Creek and Negro Creek) in addition to four small streams. Since this is an extremely important area for commercial fisheries resources, the department is very concerned about the present project as well as future plans for the area.

The 1988 data displayed in Table 3-31 (page 109) should be replaced with ADF&G's 1994 information (see the attached table "Wholesale Value by Fish Group and Area 1989-1994"). This table shows the wholesale values for Juneau/Yakutat and Petersburg/Wrangell. Please note that the 1994 value was \$80 million greater than the 1988 value.

Also enclosed is a spreadsheet of Port Houghton Pink Salmon catch/escapement from 1983 to 1995 with an explanation included at the end of the spreadsheet (see the attached spreadsheet). Longer term data can be provided if it is needed.

In the DEIS, Volume 1, Chapter 3- page 47 the first paragraph stating: "...Sandborn River pink salmon (*Oncorhynchus gorbuscha*) production has ranged up to 105,000 fish,..." is erroneous. Peak escapement up to 153,000 in 1971 and 116,500 in 1985 has been documented. This is peak escapement only. Total escapement may be as high as 382,000 (peak x 2.5). Total production is something else again; including escapement plus the number caught.

ADF&G has concerns related to Shellfish; Chapter 4- page 17 "Dungeness Crab". These surveys should be conducted during the months of December and January to see if the areas are overwintering/burrowing sites used for mating/molting for crab.

**Sportfish**

Sport fishing in the area is limited compared to other locations, but the people that fish this area travel the extra distance because of the isolation. Logging activities will diminish this experience. Personnel from the camps (both the existing camp at Hobart Bay and the planned

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Responses to ADGC

63.55 Protective measures for Class III streams are identified on the unit summary cards. Unit boundaries will avoid Class III stream buffers as required by Forest Plan standards and guidelines.

63.56 Comment noted. Plans for construction work will be shared with ADF&G for all catalogued streams.

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camp for this project) will have an impact on local fishery resources in the area. ADF&G is concerned that the increased impact from the camps will also significantly affect the Salt Chuck.

The DEIS documents the Sandborn River and its tributaries as "important spawning and rearing habitat for anadromous fish." It also states repeatedly how the upper reaches of Sandborn have "unstable slopes" with "high rates of erosion..." and that "slope failure is common." ADF&G believes the DEIS makes the case for deferring timber harvest in the Sandborn Canal/River area. Alternatives B-E have one or more LTFs or enter the Sandborn Canal drainage. ADF&G recommends an alternative with only one LTF and deferring harvest and road construction in VCU 84. ADF&G also recommends logging in VCU 79 west of Glen Creek by helicopter only. No logging should occur during this entry in VCU 79 east of Glen Creek.

Class III streams are mentioned on unit cards, but in some cases no protective measures are recommended. A USFS-prepared summary of the Anadromous Fish Habitat Assessment Report (Pacific Northwest Research Station, January 1995) recommends "increased protection of headwater areas, steep slopes, high hazard soils, Class III and smaller streams." This study found inadequate protection of Class III streams on the Tongass. Based on similar practices in place for 20 years in the Pacific Northwest, a decline in habitat and consequent risk to the viability of fish stocks is predicted. The FEIS and ROD needs to consider increased measures of protection. Variable width slope break buffers, now prescribed on some Class III streams, may be adequate in some cases, but this alone may be insufficient.

Title 16

The ADF&G maintains that it has Title 16 authority over all activities in cataloged anadromous water bodies in the state. The FS is the only federal agency which contests this authority. The FS has agreed to share plans prior to construction or work in catalogued streams [Central Princes of Wales (CPOW) Letter of Agreement]. This is the procedure ADF&G expects to follow for the Port Houghton/Cape Fanshaw Timber Sale. The following standards from the ACMP General Concurrence 7 comprise the general standards by which ADF&G reviews stream crossings for Title 16 permits, although more specialized measures are required on a site-specific basis:

1. The structure shall be designed, installed, and maintained to accommodate the efficient passage and movement of fish, both upstream and downstream, at all flows up to and including a mean annual flood design discharge with a two-day duration.
2. Alteration of stream banks shall be minimized and restricted to that necessary for the stream crossing. Disturbed streambanks shall be immediately stabilized to prevent erosion and sedimentation of the stream.



3. Authorized activities shall avoid sensitive fish life stages. (Note: ADF&G may restrict or prohibit activities during certain sensitive time periods as necessary.)
4. The installation, replacement or modification shall be conducted in a manner that maintains fish and wildlife and their habitats.
5. If the structure crosses a fresh water body, it shall not be constructed of any wood treated with a preservative containing creosote or pentachloropheno.

Because of the sensitivity of salmon streams and high-value resident fish streams and the need to maintain fish productivity, the project must be designed to protect salmon spawning areas. Towards this objective, ADF&G will require that bridges or open-bottomed structures rather than culverts be used for road crossings over salmon spawning habitat.

#### Unit Cards

Detailed unit cards and road cards are an essential component of the DEIS. It would be helpful to know which unit cards have been ground-truthed, and which have not. The maps for both unit and road cards must accurately depict the relationship of the units and roads to watercourses (by stream class), riparian buffers, hazardous soils (by MMI ratings) and topography. A narrative description is also needed to describe the potential degradation of downstream water quality and mitigative measures which will be implemented at each individual stream crossing and high hazard soil area.

Some unit narratives have not provided the level of information necessary to complete ACMP reviews. The unit descriptions should describe the riparian and wildlife habitat values in more detail, including how the fish and wildlife values of the unit were evaluated and whether the unit contains high values for a particular species for a particular season. This type of information is available only as a result of field surveys. Also, detailed comments by soil specialists, hydrologists, and biologists provided in specialists reports is also pertinent to conducting ACMP reviews of units.

Inclusion of the detailed information needed for ADF&G to review proposed stream crossings against the ACMP General Concurrence 7 stipulations is needed. Each unit card should specify the stream channel type and horizontal width of proposed riparian buffers for each stream segment and specify the field review used to determine the distribution of anadromous and resident fish species.

#### Log Transfer Facilities

The DEIS makes no mention of a US Fish and Wildlife Service report (Dec. 1994) on field investigations for proposed LTFs in Port Houghton and Baranof Island. In that report, the USFWS states that two of the proposed LTF sites, Little Lagoon and Rabbit Cove, are not suitable as LTF sites; the first because of herring spawning habitat and eagle nest trees, and the

63.57

All units have been ground-truthed by, at least, a logging engineer, forester, silviculturist, and fisheries biologist and/or hydrologist. Many additional units were field surveyed by a soils scientist, wildlife biologist, botanist, geologist, and archaeologist. A recreation planner and landscape architect reviewed units and roads from specific viewing locations. The unit and road cards show stream class, buffers, and topography. Soil hazard class ratings for units and roads are shown on a separate soils map. Narrative descriptions are included in the unit summary cards. The intent for the unit cards in the EIS is to summarize the most pertinent information on one page so that the reviewer can look at the picture of the unit card on one side of an open book. The format for the unit cards shown in the EIS is already so small that a smaller font would likely not be legible. The information provided in the unit and road cards is believed to be sufficient enough to allow ADF&G to raise red flags about particular units of concern.

63.58

This report was not made available to the project team at the time of preparation of the 1995 DEIS. No herring spawn has been documented in the vicinity of the proposed Little Lagoon LTF site. Historical records are the best indication we have of preferred habitat for herring spawning and Little Lagoon does not appear to be preferred habitat. Two LTF sites were within 330 ft. of bald eagle nests, and variances have been obtained.



second because of a deepwater reef just offshore. The reef may prohibit flushing of bark and other undesirable detritus of an LTF. The Forest Service needs to recognize this report and its opinion and include the relevant points in the EIS discussion of LTF sites.

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ADF&G has concerns that large scale inwater storage or sorting may impact milling adult salmon or out-migrating smolts. Many log sorting, storage, and transfer activities can be confined to the uplands to decrease inwater bark loss, and some activities can be located to avoid important marine habitats. The DEIS has not adequately or clearly described the environmental effects of log transfer and storage sites. In addition to the physical presence of bark, there can also be changes in water chemistry, such as the release of hydrogen sulfide and reductions in dissolved oxygen. Consequently, there is a need for a more comprehensive and professional analysis of the past and potential impacts at potential LTFs, on the local biotic resources, along with recommendations for closure, rehabilitation, mitigation, and a long-term monitoring program. Currently, Chapter 4, pages 13 and 15 do not present water data or flushing action at each proposed LTF site. "Direct Effects" and Chapter 4-14 "Bark Deposition and Dispersion" do not discuss bark and wood debris deposition, changes in marine substrate characteristics from bark accumulation and loss of whole logs sufficiently. ADF&G believes that these impacts would be minimized or eliminated by barging. As such, ADF&G believes the FEIS and ROD should display alternatives related to upland storage and barging logs. What is the cost increase to have upland storage? How much increase in upland disturbance would occur by having upland storage? The advantages and disadvantages of this should be analyzed further in the FEIS, along with other options such as helicopter yarding to off-shore barges, or utilizing shore-based barges.

ANILCA Sec. 810(a) Comments

63.60

Available subsistence research, wildlife modeling and harvest reporting, and Forest Service ANILCA Section 810 procedures and requirements, when taken together, would permit a thorough examination of the impacts to subsistence uses of this timber sale. The following comments will examine how the Forest Service has used best available data and whether or not accepted procedures have been followed in making Section 810 determinations in this document.

Forest Service analysis projects that there already may be a significant restriction of subsistence use of deer under all of the alternatives, including the No Action Alternative. These anticipated restrictions on subsistence raise some general concerns regarding the selection and scheduling of this sale and about the range of alternatives provided in this DEIS. One shortcoming of the DEIS is that it does not analyze any action alternative which will lessen or ameliorate reductions in deer habitat capability.

**Selection of Port Houghton/Cape Fanshaw as a Project**

The ANILCA provides for "the continuation of the opportunity for subsistence uses by rural residents of Alaska" (Sec. 801 (1)). The selection and scheduling of this project does not

Responses to ADGC

63.59

Refer to revisions to Section 4.2 of the Revised DEIS for additional information on bark deposition and dispersion.

63.60

Refer to response to comment 53.5.



appear to have been influenced by subsistence considerations. Competition for deer is likely to increase due to logging camps, road building, and other developments planned for the Port Houghton/Cape Fanshaw Project Area. Reductions in deer habitat capability will also lead to fewer deer in the project area. If minimizing effects on subsistence was an important planning goal, Port Houghton/Cape Fanshaw would not be scheduled for significant logging as long as other areas in the Chatham and Stikine Areas or forest wide are available for logging where subsistence impacts might be less.

Section 810 Determinations

ADF&G believes that the Forest Service has failed to show that a significant possibility of a significant restriction of subsistence uses in the Project Area is necessary and consistent with sound management principles for the utilization of public lands. In July 1990, the Federal Government took over management of subsistence use of wildlife resources on federal lands, making the Forest Service responsible for maintaining subsistence resources on the Tongass National Forest.

The potential foreseeable and cumulative effects from the action alternatives in the Port Houghton/Cape Fanshaw Project Area represent a significant possibility of a significant restriction of subsistence use of deer. ADF&G believes that mitigation of a significant possibility of a significant restriction on subsistence use of Sitka black-tailed deer inadequate. Therefore, ADF&G disagrees with the FS that it has presented an alternative in this DEIS which takes reasonable steps to minimize adverse impacts upon subsistence.

NEPA Comments

General Comments

In general, ADF&G believes far too much timber is proposed for harvest in the first entry. The impacts to fisheries and wildlife, particularly mountain goats, deer, and possibly goshawks could be substantial. ADF&G opposes logging in Sandborn Canal and east of it in inner Port Houghton. ADF&G is concerned about the magnitude of logging in the watersheds of Negro Creek and Roberts Island Creek. ADF&G is concerned that the Dahlgren Peak goat population will be entirely encircled and isolated by logging and roading in nearly all alternatives. ADF&G is concerned about the the FS failing to effectively close roads after logging to protect goats and marten from overharvest. ADF&G is concerned about the analysis of the effects on goshawks which ADF&G believes understates the consequences of logging 5,000-7,000 acres of old growth forest around three northern goshawk nests. ADF&G is concerned about the effects of logging in Sandborn Canal and Inner Port Houghton on guided hunting and wildlife viewing in Port Houghton.

63.61

Refer to response to comments 18.2 and 62.2. Road closures and other mitigation measures to protect the mountain goat and other big game from overhunting are incorporated into the alternatives.



Responses to ADGC

63.62	Maps were designed for the EIS to fit as 11 X 17 figures. Additional detail, as requested by ADF&G, is difficult on these smaller scale maps. The larger scale map showing differing old-growth volumes for existing conditions in color can be provided directly to ADF&G if a specific request is made.
63.63	Refer to revisions to Chapter 2 of the Revised DEIS for a description of net sawlog plus utility volumes.
63.64	If forest fragmentation is maximized in the project area, then one would expect to see units and roads throughout the entire project area including South Fanshaw, North Shore, East Houghton, and surrounding the Salt Chuck. We are not sure how ADF&G has come to this conclusion when units have been relatively confined to specific geographic areas and other larger areas are avoided altogether. An LSTA map is available for review by ADF&G as four larger scale map sheets. As shown in Table 3-3, total suitable available CFL is about 47,575 acres. The volume identified in the purpose and need is less than 10 percent of the total suitable available volume in the project area. If ADF&G is requesting that the EIS range for alternatives be from 0 to 47,575 acres to allow maximum sustained yield of timber, then that approach is not required by NEPA and is not appropriate.
63.65	With the amount of volume in the project area, it was apparent at project initiation that multiple resource objectives could be achieved for the project area. Note that all units were field evaluated to determine whether they were appropriate for selective harvest methods. Refer to the response to comment 13.2 also.

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DEIS Public Comments

Maps

Forest Service DEIS maps are poor. Alternative maps are too small and show no topographical features but shorelines. The DEIS contains no map of forested land as it now exists in the project area. The one map which does show old growth forest (Fig. 4-2) shows it with all proposed timber harvest units removed so no contrast is shown between pre- and post-logging forest blocks and fragmentation. This map also does not show differences in types of old growth which makes it seem that all old growth has the same value for wildlife and other forest resources.

Volume to be harvested

The only information on proposed timber sale volume in this DEIS says the Port Houghton area is to provide 100-125 mmmbf *net sawlog* volume (emphasis added). Utility volume is now included in computations of ASQ and toward the volume necessary to fulfill the long term contract. However, this fact is not evident in the DEIS. Total volume including utility volume by alternative is not mentioned in the DEIS where ADF&G could find it. So the actual volume of timber to be logged in the project area is not revealed to the public. The Forest Service needs to be more forthright in revealing that the alternatives will harvest up to 150-155 mmmbf, not 125 mmmbf as the DEIS repeatedly claims.

Proposed Harvest Level

ADF&G questions whether the Purpose and Need for this project may be contrary to the other FS objective of using "ecosystem management" in the decision-making process. The unit pool and proposed action appears to maximize forest fragmentation in the project area. The FEIS should clearly depict on a map all the operable and available CFL which could be cut over the rotation so that this may be evaluated by the reviewers.

Once the operable and available CFL has been accurately determined, and verified in field surveys, alternatives should be developed based on different cutting levels to give a "true range of alternatives" and provide the decision maker with a "reasonable choice" based upon the biotic capabilities of the project area. The FS should develop alternatives that would provide optimum fish and wildlife production to meet public demand; viable populations; sustained yield of timber and fish and wildlife; and maximum sustained yield of timber.

Ecosystem Management

The TLMIP timber target for the management area in which the sale will occur appears to be driving the planning process for the project. Given this constraint, "ecosystem management" will be an elusive goal. ADF&G believes that the foremost concept of ecosystem management is not mandating a project timber harvest level before field review of the area to verify the level of harvest that could be sustained given the multiple resource management objectives for the area.



63.66

Other ecosystem management concepts ADF&G recommends include: 1) minimizing forest fragmentation by locating harvest units on the edge of old-growth blocks; 2) adopting the recommendations of Samson, et. al. 1989 in "Conservation of Rain Forests in Southeast Alaska: Report of a Working Group"; 3) moving away from clearcutting as the predominant method of timber harvest and tailoring the method to fit the elevation, aspect, species composition, wildlife needs, or other relevant components of the ecosystem including replication of the natural disturbance regime; 4) avoiding or minimizing timber harvest in the most important wildlife habitats (i.e. Sandhorn Canal, south and west slopes of the Negro Creek area, and mountain goat habitat, etc.); and 5) determining in advance of timber harvest how the retained habitat in the project area will fit into a Tongass-wide plan to maintain viable and well-distributed wildlife populations and sustained yields of fish and wildlife.

#### Falldown, Suitable timber acreage, and volume calculation

The state's review comments on the CPOW DEIS and FEIS expressed concerns for the lack of a sustainable timber harvest within that project area, and discussed the resulting social and biological conflicts with other resources. These concerns are much the same for the Port Houghton/Cape Fanshaw Timber Sale project area.

The DEIS has no discussion of falldown. In the Upper Carroll DEIS, the Forest Service found falldown in the preferred alternative to be as much as 80% of the suitable timber base. Falldown has become a forestwide issue. Every timber sale project has the responsibility to compare the timber volume estimates on which project and programmatic planning are based to the suitable timber volume actually encountered in final unit layout. Project level falldown has implications for the sustainability of logging forestwide. Sustainability of logging is an issue that ADF&G believes has to be addressed in every project EIS no matter which entry of the rotation or when the next entry is planned.

On page 3-4, the method used to calculate timber volume in the project area seems guaranteed to overestimate what is available. It appears from the text that the volume of the proposed timber harvest units was measured and then extrapolated to the area as a whole. Because harvest units are not laid out randomly but are typically sited in the best, highest-volume stands of a volume class, the assumption that all acres in the project area match those in the harvest units is more than likely erroneous. Besides overestimating volume available for harvest which affects falldown and sustainability of logging (see above), the method would tend to mask high-grading. If this method was involved in the calculations for determining TTRA proportionality it violates the Forest Service Handbook direction and is also different from the interim method adopted after the Kelp Bay suit.

The Port Houghton DEIS claims 42,488 suitable acres in the Chatham Area of the project area (Table 3-4, pg. 3-4). However, the 1986 TLMP Amendment claims only 26,000 CFL acres in management area C-14 (pg. 33). Why is there a discrepancy of 16,000+ acres?

#### Cumulative Effects Analysis

The definition of "falldown" is provided in the Tongass Land Management Plan Revision FEIS Chapter 2 under Alternatives Considered in Detail. The planning for timber harvest in the Port Houghton project area is unique from most historical timber harvest projects in that entire units have been flagged in the timber planning process. More knowledge has been gained in assessing the amount of timber available from each unit. Additionally, stand exams conducted for units provide a detailed quantitative assessment of the amount of timber present. As a result, soft falldown is likely to be less than previous estimates or may not occur at all for this harvest. During field surveys, more timber volume was observed than projected on Forest Service GIS maps that were likely used by the TLMP Amendment in 1986. Hard falldown has been a positive value rather than a negative value illustrating that there is more timber in the project area than originally anticipated based on field surveys. Since there will be no long-term contract offerings made from the Port Houghton/Cape Fanshaw project, there are no requirements under TTRA regarding proportionality.



The cumulative effects analysis should consider the effects of the proposed timber sale in combination with effects of reasonably foreseeable sales in this area. TLMP did not do such site- and action-specific analysis, claiming that only project level planning could address these impacts. TLMP designations, the logging levels mandated by that plan, and the consequences of complying with the management directives of TLMP should all be explicitly presented in the FEIS. Sport and commercial fishing and subsistence and sport hunting patterns by residents of Petersburg, Wrangell, Kake, and other communities are also being affected by other nearby timber sales. Treating this sale in isolation would not allow adequate evaluation of effects on subsistence and sport users of the area.

63.67

#### Habitat Capability Values

ADF&G strongly objects to the terminology used to characterize wildlife habitat in this document and the Wildlife Resources Effects Report. The use of the arbitrary terms "suitable" and "marginal" throughout the DEIS in describing the two higher ranges of HSI scores for wildlife is misleading and inappropriate. "Suitable" is too absolute a term to use to describe the highest HSI range. In the case of deer, the DEIS states that because there is no habitat that scores in the high range on the habitat suitability index the area contains "no suitable deer habitat". During our field visit to Port Houghton in May 1995, ADF&G found an abundance of suitable deer habitat. Because wolves are present and the entire project area has an intermediate or deep snow rating, it is not possible for any area to score 0.7 on the HSI. This does not mean there is "no suitable deer habitat" in the area. As long as deer occur, the habitat must have some degree of suitability. The use of "marginal" is also misleading. Most deer habitat in the Tongass NF falls in the 0.3 to 0.7 HSI range. Calling habitats "marginal" which produce up to 70 deer per square mile seems inordinately critical.

63.68

Good habitat should not be viewed as an absolute forestwide but is relative to each project area. The best deer habitat in the Port Houghton area may not be as good in HSI terms as the best deer habitat on Admiralty Island. That does not mean that it is not as important to the local deer population. To the contrary, the best deer habitat in the Port Houghton area, even if it scores as low as 0.6 is likely to be more important to deer on the mainland than some 1.0 areas are to deer on Admiralty because there is less of it. For this reason, any descriptive terms about the HSI value of habitat should be relative to the area under analysis. If four categories are to be used, we suggest the top range of habitat in an area be called "highest value", the next range "moderate" or "average" value, the next "lowest" value, and for HSI scores of 0, "unsuitable".

The same is true of goat habitat. The best goat habitat supports 11.4 goats per square mile. Habitat with an HSI rating of 0.6 can still support 7 mountain goats per square mile. To term habitat which supports this many goats "marginal" is again inordinately critical. This is not a minor semantic point. By using the terms it does, the EIS can and likely does mislead decision makers into thinking there is no important deer habitat in the Port Houghton project area and that habitat for other species that will be lost in some alternatives is not important.

#### Responses to ADGC

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|-------|--|
| 63.67 | Refer to revisions to Cumulative Effects sections in Chapter 4 of the Revised DEIS.  |
| 63.68 | Suitable and marginal refer to the habitat suitability indices obtained from running the models. Section 3.3 has been revised for deer to illustrate that these terms relate to the HSI index. Please also note that results from the transect surveys conducted by ADF&G in 1989 indicated that mainland deer densities throughout Southeast Alaska were low. There is no EIS attempt to undervalue the importance of deer or goat habitat in the project area, rather the EIS displays the results of the quantitative analysis obtained from the habitat capability models that ADF&G helped develop. |



**Viable Populations**

ADF&G requests the FS incorporate current conservation biology concepts and strategies into the FEIS which will maintain biological diversity. Recommendations to attempt to keep wildlife populations viable and well distributed, as required by the National Forest Management Act, are contained in the draft Interagency Viable Populations Committee (VPOP) report (May 1993) and were strengthened by the Kiester and Eckhardt review of this strategy (March 1994). These recommendations should be incorporated into the ROD.

The VPOP interagency committee also recommended that a minimum of one small HCA of 1,600 acres be established in each VCU greater than 10,000 acres. Please note that this is a minimum figure which does not produce wildlife to meet human harvests.

The FEIS should ensure connectivity between old-growth blocks so as to maintain dispersal and genetic interchange for various species. The delineation of wildlife corridors should include as much old-growth forest as possible with dense canopy. This will help maintain interior forest conditions and facilitate travel for certain species. Cover is an essential element for travel corridors for some species and may be needed to avoid fragmenting or isolating populations. Alpine muskegs, partially forested muskegs, and low-volume stands lack the necessary canopy cover and preferred foods of some species. Although certain species are able to physically travel through these habitats at certain times of the year, such areas may not function well as corridors. The minimum required width for wildlife corridors by most species is still undetermined. The interagency VPOP committee recommendation for brown bear corridors on pink and chum stream fishing areas, for example, is 300 feet on either side of the stream. ADF&G believe this standard would also be appropriate for black bear, which are particularly abundant in the Sandborn Canal/River areas.

Corridor planning should consider distances between forested blocks, species use, and duration. In general, the more widely spaced blocks of old-growth, the wider the corridors. For some species, travel corridors need not be so wide as to contain interior forest habitats as long as corridor length is less than a quarter mile. Travel corridors also need to be windfirm so that blowdown does not diminish their effectiveness.

**Economics**

The FEIS needs to contain an improved analysis of the economic value of fish and wildlife to the fishing, hunting, and tourism industries as well as their values to local residents and the likely effect of the proposed plan on those businesses. This should include dollar value estimates for tourism, fishing, subsistence, and other activities on the forest. One reference is Shea, 1990, "Impacts of development on the non-hunting wildlife-oriented businesses of Southeast Alaska."

63.69

Refer to revisions to Sections 3.3 and 4.3 of the Revised DEIS for descriptions of Old-Growth Habitat LUDs. Forest fragmentation was evaluated using a corridor width of 330 ft. Figures 1-3 and 2-1 in the Revised DEIS provide some indication of connectivity among the Old-Growth Habitat LUDs and other elements of the old-growth conservation strategy adopted by the new Forest Plan.

63.70

Refer to revisions to Section 4.2 and 4.7 of the Revised DEIS for a discussion of economic impacts on fishing, hunting, and tourism industries.



## Roading Effects and Road Cards

The development and expansion of road networks without adequately maintaining or putting the system to bed has resulted in erosion, fish passage blocks, wildlife conflicts, and related problems. The FS needs to avoid constructing and abandoning roads without either putting them to bed or implementing an effective and responsive maintenance program.

As development proceeds within and adjacent to the project area, roadless areas (especially those greater than 5000 acres) will disappear. This has significant implications for far-ranging species such as wolves, or species of lower fecundity which can be easily hunted and shot from newly developed road systems (e.g. black bears and marten). The FS needs to more carefully analyze how the elimination of roadless areas will affect wildlife species.

The FEIS should better evaluate the cumulative impacts of intensive roading on marten, black bears, wolves, and mountain goats. ADF&G research has shown high road densities to be detrimental to each of these species. Disturbance effects of roads and camps, which are part of the habitat capability models for these species, should be used in this analysis. The FEIS should display the effects assuming all roads will be left open as well as display them for whatever access management closures are proposed because, even though the FS may desire to close a road, ATV users and others often find routes past the barriers. This area will be particularly attractive to ATV users. Trappers using ATVs can cause wildlife management concerns similar to road connected to the ferry system, with significant detrimental effects to marten, black bear, wolf, and mountain goat populations.

Additionally, if roads are not closed, trappers using ATVs transported to the area by boat can produce the same effects as would one connected to the larger road or ferry system. Unless roads are closed to use by ATVs as well as highway vehicles, detrimental effects to furbearers and bears may occur. Removal of culverts and bridges and the placement of large rocks is probably the best method of putting roads to bed for both highway vehicle and ATV use.

Risks to wildlife from road access also exists during logging operations. Because of their proximity and easy accessibility to the project area, logging camp residents' effects on wildlife populations are likely to be greater than those of other rural and nonrural users. Logging camp residents hunt and trap and have access to road systems during project operations. The FS should consider asking Forest Service employees and logging contractors to voluntarily restrict hunting, and trapping while logging operations are underway. A precedent for camp prohibitions against hunting and trapping was set by the Greens Creek mining operation on Admiralty Island.

Finally, ADF&G asks the planning team to develop a strategy for monitoring access impacts so that unexpected problems can be managed if monitoring indicates unacceptable impacts to wildlife or historic subsistence use are occurring.

## Wildlife Concerns

63.71

Refer to revisions to Section 4.3 of the Revised DEIS. Road effects to MIS species were included in the use of the habitat capability models. Road closure plans would need to consider access needs to monitor effects of the sales, perform post-sale silvicultural treatments, implement enhancement projects, perform needed road maintenance, and conduct future sales. The Federal Subsistence Board and the State of Alaska have the authority to regulate the use of ATVs or other motorized vehicles for harvesting wildlife irrespective of RMOs. The monitoring plan in Appendix E includes monitoring of post-sale road use.



Deer

A math error was made on pg. 3-22 in calculating the deer density in VCU 82. The density in Negro Creek area based on a pellet group survey is 6.7 deer per square mile, not 0.006. The density in VCU 89 (North Arm of Farragut Bay) would be 0.64 deer per sq. mile.

Three of the four action alternatives (B,D,&E) concentrate harvest units in what appears to be the best deer habitat on the south shore of Port Houghton. This is the area ADF&G is most concerned about for deer. The east fork of Negro Creek, watershed 331 is heavily affected by these alternatives. The southwest-facing hillside on the east side of the creek is shown by HSI maps in the Wildlife Resource Effects Analysis Report to be some of the highest rated deer habitat in WAA 2927. The HSI maps were not included in the DEIS as ADF&G had asked so the Division of Wildlife Conservation had to specifically request the information from the Forest Service. The information is not readily available to the general public.

Harvest unit 62 (331045), is a great concern. First of all it exceeds 100 acres. Second it is a mile-long clearcut extending from stream buffer to subalpine on a southwest aspect slope. After a 600-foot leave strip, harvest unit 92 (331048) takes out another 1/2 mile long strip of high quality habitat. All alternatives except E also propose harvest of many neighboring units on that ridge and on the hillside across the east fork of Negro Creek. In short, a high percentage of old growth and deer habitat will be removed from this area in a single entry.

Other high value deer habitat on the south shore of Port Houghton is proposed for logging. All alternatives propose some combination of units which target deer winter range on the forks of Negro Creek or Robert Islands Creek. Significantly, these are the areas where deer sightings and hunting most occur on the south shore of Houghton. The DEIS (pg. 4-25) indicates habitat capability in WAA 2927 would be decreased to very near 500 deer following this entry. ADF&G has suggested 500 deer is a minimum habitat capability for a WAA to maintain viability for deer in that WAA. Implicit in the deer habitat capability model is the need for some high value winter range to remain in the mix of habitat types for deer. ADF&G believes too much of that deer range is targeted in most alternatives.

Mountain Goats

ADF&G disagrees with the DEIS statement (pg. 4-24) that "mountain goat hunting has not been considered a major Alaska big game sport." Evidence that goat hunting is not a minor activity is found in the state requirement that nonresident hunters must have a big game guide to hunt goats. Annually about 150 mountain goats are taken in southeast Alaska, nearly the same number as brown bears.

All alternatives have roads in close proximity to goat range on Dahlgren Peak. The goat population on Dahlgren is small and isolated as the DEIS states and is vulnerable to any diminution of its habitat. In spite of an extensive discussion of this population in the DEIS and extensive comment by ADF&G both in writing and in conversations with the planning

63.72

Refer to revisions to the deer discussion in Section 3.3 of the Revised DEIS. HSI maps are not included in the Revised DEIS as there are few requests for these maps, and they are color maps—costly to reproduce. ADF&G has copies of the habitat capability model maps. There are few units that exceed 100 acres in the Revised DEIS. Your comments regarding deer winter range are reflected in the range of alternatives displayed in the Revised DEIS.

63.73

ADF&G was contacted to obtain the referenced article. The agency was unable to obtain this article but did send a similar article by Shea written in 1990.

Additional surveys to determine goat winter range between Dahlgren and Jamestown peaks occurred in June 1996. No evidence of a travel corridor between the two peaks was found. Some of the alternatives in the Revised DEIS avoid mountain goat winter range. Unit 381137 has been dropped from consideration and units 381138-40 are proposed for helicopter logging. RMO for some alternatives propose road closures to protect goats from overhunting. Also, refer to response to comment 12.2.



63.74

Refer to comment 63.67. Concerning goshawk relocations, a reference in the 1995 DEIS (Titus et al. [1994]) discusses percentages of relocations in old-growth forest. Also discussed was the variability of home range sizes. It is difficult to estimate the number of goshawks in the project area based on several factors described in the 1995 DEIS and your comments. It is further confounded by the use of different methodologies to calculate home range and whether home range size should be based on breeding season only or the entire year. However, providing an approximate estimate based on an average home range size is better than no estimate. The average home range size of 8,000 acres was obtained from USDA-FS (1994a), and only old-growth habitat was used for an estimate of total acreage available. Please be aware that this estimate was used only to make the reader aware that more than three pairs of goshawks occur in the project area. Refer to revisions to sections 3.4 and 4.4 of the Revised DEIS. The new Forest Plan includes standards and guidelines for goshawk management and the alternatives are consistent with the Forest Plan.

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Port Houghton/Cape Fenshaw EIS

DEIS Public Comments

team over the past two years, the alternatives seem to have been developed without regard to their effect on these goats. Only one of the action alternatives maintains a travel corridor linking the Dahlgren population with the smaller and even more vulnerable Tangent-Saranac Peak group. Although numerous studies have demonstrated that goat populations suffer when road construction causes disturbance and makes them accessible to humans, logging roads encircle Dahlgren in nearly every alternative. The road management plan is not encouraging in this regard. All mainline roads will remain open to highway vehicles, all roads will be accessible to ATVs. ADF&G sees no active road closures (bridge removal, barricades, ditching) proposed.

ADF&G strongly opposes logging in the Sandborn Creek watershed. Several of the proposed units there are in what is likely goat winter range. On the north side of Port Houghton, unit 381137 appears to be in goat winter range. ADF&G opposes logging this unit and recommends that road 84891 not be built and units 381138-40 be logged by helicopter.

## Goshawks

In general, ADF&G finds the Port Houghton sale to be similar to nearly all past sales on the Tongass. Although three goshawk pairs have been confirmed as nesting in the project area, ADF&G has seen little evidence that forest management has changed to accommodate them. Although the DEIS states that "the overall objective has been to avoid impacts to all goshawks in the project area considering the entire unit pool," all of the current alternatives proposes some level of timber harvest or roading within a 600-acre core radius of the only known goshawk nests. The overall design of the timber sale has not been visibly affected by the confirmed presence of northern goshawks. Proposed fragmentation of the project area is substantial and widespread. A timber harvest target once again seems to be driving the project and its design.

ADF&G strongly disagrees with some of the DEIS and Wildlife Resource Effects Analysis Report (WREAR) information on the northern goshawk. Some of the assumptions used in the documents to justify logging near goshawk nests are, ADF&G believes, inappropriate. Although many of the statements and much of the information in the WREAR is not included in the DEIS, it is clear that assumptions in the DEIS are based on information in the WREAR.

ADF&G disagrees with the assumption stated on page 4-44 that the project area supports 10 pairs of goshawks. This assumption is based on an assumed home range size of 8,000 acres. In addition, the WREAR claims the estimate of 10 pairs of goshawks is conservative because the Cat Creek female's home range was only 6,880 acres. ADF&G finds four problems with these assumptions. First, Cole Crocker-Bedford's (1990) estimate of Queen Charlotte goshawk densities which was used to predict the presence of 10 pairs in their project area is out-dated and was developed in the absence of current information on home range size based on radio-telemetry. Second, the range of the Cat Creek female is based on only 10 relocations collected over a one month period (7/15-8/15). Kenward (1987) suggests a sample size of 30 relocations as a standard for adequately describing range size of radio-tagged animals including goshawks. The mean adult



breeding season use area for the 7 northern goshawks in Southeast Alaska for which there are at least 30 relocations is 15,300 acres per bird. Second, the FS assumes old growth is evenly distributed in the project area and that all 10 potential home ranges meet the Crocker-Bedford criteria of having at least 50% old growth forest greater than 8 mbf/ac. This is probably not true. Third, the Forest Service assumes that the home range of each bird in the pair is the same and overlaps exactly. So far research has found mated birds do not have the same home range. Some overlap extensively, others very little. The amount of overlap to their ranges varies from pair to pair.

The WREAR (page 26) also claims that because much of the bird's home range was not old growth forest, goshawks are not entirely restricted to old growth forest. In fact, relocation data from 24 adults radio-tagged at nest sites in SE Alaska demonstrate avoidance of nonforested lands including early succession and clearcut land cover types. This is true even for those birds with significant amounts of non-forest habitat types within their home ranges.

The DEIS discussion of northern goshawks on page 4-44 is too sanguine about the effects of logging on goshawks. Timber harvest could affect goshawks in more ways than stated in the DEIS. 1) By reducing the amount of old growth in pairs' use areas, logging could force birds to expand their home ranges. Larger home ranges would mean a decrease in the density of birds the area could support. The assumption made by the DEIS that because over 50% of the area remains in old growth forest after logging, no detrimental effects will occur to goshawks is not necessarily valid. It assumes that old growth will be evenly distributed through the project area after logging. 2) Timber harvest could also affect goshawks through forest fragmentation that increases the possibility for interspecific competition between goshawks and other birds like red-tailed hawks and great horned owls more suited to open, high forest-edge habitats. 3) The DEIS does not acknowledge any potential adverse effects from timber harvest on goshawk wintering areas. Radio-telemetry data from Southeast Alaska has shown that during the winter goshawks typically expand the size of their breeding season use areas to encompass greater land area. This is likely because many avian prey species found in the goshawk's breeding season diet migrate south for the winter decreasing the prey available to them.

There is no data or information suggesting partial cut logging units would be used for nesting by goshawks as claimed in the DEIS. None of the 36 documented nest areas in Southeast Alaska occur in partial cut logging units.

The section on impacts to specific nests also contains errors. Rich Lowell, ADFG goshawk researcher, and Carol Hale of US Fish and Wildlife Service visited the marked "nest tree" at Negro Creek in June 1995. Although they saw goshawks and believe they nest somewhere in the vicinity of the marked tree, Lowell states they found no nest in the indicated tree. He believes the nest location was misidentified (Lowell, pers. comm.).

The DEIS states goshawk's nests are "generally not" reused in Southeast Alaska. There is no data to support this statement at this time. Although nests generally are not reused in consecutive years, they are more frequently reused after several years have passed. Goshawk research has



not been done long enough in Southeast Alaska to determine with any confidence how frequently individual nests are reoccupied. One goshawk pair in northern Southeast used its nest two years in succession. Another northern pair used the same nest in alternate years. Several other nests are believed to have been used more than once given their large size and layered appearance.

The WREAR (pp. 29-30) states that logging in any of the alternatives is not likely to cause the loss of a breeding pair or threaten goshawk viability because the alternatives meet the current Interim Management Guidelines for the Tongass. ADF&G and others have questioned the adequacy of these guidelines. They were developed by the Southwest Region of the Forest Service base on home range sizes of goshawks inhabiting the southwest region of the U.S. Radio-telemetry data have shown that goshawks inhabiting Southeast Alaska typically have larger home ranges than those in the southwestern U.S. The Interim Guidelines mandate management of a 6,000 acre foraging area around known nests of which 20% of the area must be maintained in productive (VC4+) forest. A recent analysis of habitat characteristics based on cover types around 32 Southeast Alaska goshawk nests reveals that the mean amount of productive (VC4+) forest within a 6,000 acre concentric circle is 52%. The Guidelines also mandate the maintenance of a 30-acre nest area around known nests. Although information on nest site reoccupancy rates in Southeast Alaska are not currently available, in northern California researchers have determined that goshawk nest stands smaller than 40 acres were rarely reoccupied (citations available.)

Finally, ADF&G is aware that several goshawk sightings have occurred east of Sandborn Canal in the project area. No nests have been identified there yet. Timber harvest in this area prior to identifying nests runs the risk of greater adverse affects to the goshawk population of this area than the DEIS acknowledges.

Black bears and general wildlife issues in Sandborn Canal and Inner Port Houghton

The division opposes logging in Sandborn Canal or east of Sandborn. Inner Port Houghton and Sandborn Canal are very high quality areas for black bear and goat hunting and wildlife viewing. Logging in Sandborn or east of it would destroy the esthetics and reduce the value of both hunting and viewing there. Since 1971, Port Houghton (Wildlife Analysis Area 2927) has provided the fourth highest black bear harvest by guided hunters in Southeast Alaska and the highest on the mainland. It has had the highest percentage of guided black bear kills to total kill of any WAA in Southeast Alaska. Clearly it is highly valued and marketed as a quality hunting experience. The mainland has few quality areas for guided hunting and viewing of abundant wildlife. The Sandborn Canal-Inner Port Houghton area needs to be maintained to meet current and future demand for such areas.

In a memo describing a field visit to Port Houghton in May-June 1995, ADFG personnel noted the wildlife values of Sandborn Canal and Inner Port Houghton. The following are excerpts from that memo (Paul,Robus,Carney to Titus 6/14/95).

63.75

Refer to response to comment 12.2. Also, refer to revisions to Section 3.7 of the Revised DEIS for an additional discussion on guided bear hunts in the project area. Alternatives analyzed in the Revised DEIS include provisions for road closures to mitigate potential effects of roads on wildlife. The mitigation measure to schedule logging in units outside the spawning season for salmon will be considered. Field inspection of all stream crossing has occurred by fisheries biologists. Siting of stream crossings cannot be determined solely by wildlife biologists. Other resource constraints (such as perpendicular crossings, minimizing road mileage, avoiding hazardous soil conditions) can be of greater importance. Incinerators would be required at logging camps for garbage disposal, and training on avoiding disturbance to wildlife would also be a condition of the contract.



"The black bear population density appears to be quite high. We are aware of three parties of bear hunters who hunted Sandborn Canal between May 23 and June 5. At least two of those were commercially guided hunts. One of those parties reported seeing 19 different bears in three days; 16 were in the Sandborn drainage, the other three were in the Salt Chuck. Another reported seeing 8 bears in three days at the mouth of the Salt Chuck. In addition, we know of two recreation/tourism parties (one a commercial trip) that visited Sandborn Canal and Houghton Salt Chuck during the week of May 28 - June 3.

"...If the number of hunting and recreation parties using the area at the end of May are any indication of the attractions of Houghton, then the wildlife and scenic values of Sandborn watershed and the eastern end of Port Houghton need to be maintained. Aesthetics are an important aspect of wildlife use in Alaska, enhancing the experience not only of wildlife viewers but also of many hunters, particularly nonresidents. Roads, LTFs, and clearcuts in watershed 398 east of Sandborn would greatly detract from the aesthetics of hunting and wildlife watching in Port Houghton.

"...It is clear from our trip that the black bear resource in the Port Houghton area is exceptional. Roads have been shown to adversely affect bear populations. If the exceptional quality of the black bear population is to be maintained then a large road-free refuge in Houghton is needed. Because of its scenic values, its high-value fishery, its habitat value to bears, and the access to bears the estuary affords to hunters and viewers, the Sandborn Canal watershed should be spared any timber harvest or road construction. This includes deferring units 341102 and 3411104 which appear in most or all draft action alternatives we have seen.

"Waterfowl and seabird sightings in Port Houghton and the Salt Chuck include: several common and redbreasted mergansers, a harlequin duck pair at the mouth of 'Rusty River' at the head of the Salt Chuck, Barrow's goldeneyes, 60-80 Canada geese foraging on flats at the mouth of the Salt Chuck, Arctic terns both in the Salt Chuck and flying over North Arm, several marbled murrelet pairs, about a dozen pigeon guillemots, a western grebe, six Pacific loons, and five common loons. Gulls, crows, and ravens were ubiquitous.

Port Houghton is one of the best places for wildlife viewing on the mainland from Cape Fanshaw to Skagway. One evening in North Arm we were able to simultaneously watch large terrestrial mammals (mountain goats), large marine mammals (killer whales and harbor seals), waterfowl (geese and loons), an eagle, and seabirds (murrelets and terns). The variety and abundance of wildlife and fisheries in this bay need to be preserved."

The FS should include mitigative measures to reduce the effect of bear hunting by logging camp residents because the greatest short-term potential for adverse impacts to black bears



- 63.76 Destruction and disturbance of nests and important habitats will be avoided to the extent feasible.
- 63.77 Mountain goats will be monitored during project implementation. However, ADF&G has the responsibility for managing the goat population and setting hunting seasons.

comes from those who have daily access to the area and work in and near critical habitats such as the Sandborn Canal/River. The FS could prohibit hunting by logging camp residents as part of the timber harvest contract or by requesting the camp operators to establish such a prohibition voluntarily. This was done by the company operating the Greens Creek Mine on Admiralty Island. Given the historical increase in bear harvests associated with the operation of a logging camp, the alternative to prevent the overharvest of bears would be a complete season closure which ADF&G believes would unfairly affect existing hunters and guides. The success of the Greens Creek policy in protecting the local bear population is well known.

The department also recommends that logging operations in units immediately adjacent to fish streams on which bears concentrate to feed on salmon and berries be scheduled to avoid the spawning season. The scheduling would reduce the risk of disturbance to bears at the critical fishing time, and also reduce the risk of bear/human encounters which might result in defense-of-life-or-property kills or danger to humans.

Stream crossings need to avoid places where bears are known to congregate to fish or places with characteristics that make them good fishing spots for bears. For spawning salmon to be accessible to bears, the right combination of shallow water, pools, gravel bars, cover, and other factors must exist. The traffic at stream crossings may displace bears from these vital areas at critical times. Field inspections by wildlife biologists of the fish streams in the project area should precede final siting of stream crossings.

Incinerators need to be installed to dispose of garbage at logging camps in the project area. As with other large construction projects in Alaska, camp personnel should be given compulsory training on minimizing adverse impacts to bears and other wildlife.

#### Wildlife Surveys

Wildlife surveys, especially for mountain goats (winter-use only), goshawks, murrelets, great-blue herons, sandhill cranes, and Vancouver Canada geese need to be conducted and/or continued in the project area to locate and maintain important habitats prior to unit selection in the ROD. ADF&Gs request road, camp, harvest unit, and ancillary facilities be located and designed to prevent the destruction and/or disturbance of nests and other important habitats.

#### Monitoring

The Forest Service has no monitoring plan for mountain goats in the project area despite the fact that all of the action alternatives have the potential to cause significant disturbance to the Dahlgren Peak goat population and would result in that population becoming significantly more accessible to humans because of road construction. The lack of a monitoring plan indicates a potential disregard for the future of this goat population.

63.76

63.77



## Proportionality

The Forest Service's typical method for determining proportional harvest of volume classes was deemed illegal in the Kelp Bay decision in April 1994 because it was arbitrary and capricious. Yet in every timber sale project currently before us for review (Upper Carroll, Eight Fathom, Northwest Baranof, Lab Bay, Control Lake, Port Houghton, Shamrock) the Forest Service has continued to use this method. The prime reason for mandating proportional harvest was to avoid disproportionately cutting the most important wildlife habitat early in the rotation thereby endangering biodiversity and reducing the yield of the wildlife resource unnecessarily early. In the Port Houghton sale, the Forest Service needs to use a legal method for determining TTRA proportionality.

Even using the current method in the DEIS, the preferred alternative, B, exceeds the Forest Service's own guidelines for disproportional harvest in both management areas (SO1 and C14). One management area in alternative D also exceeds the limit for disproportional harvest (DEIS pg. 4-6). Indeed in every alternative in both areas, the percentage of high volume acres is less than in the project area to begin with. As it has in every other area of the forest on its first entry, the Forest Service is high-grading the old growth forest. As it is likely the large majority of the acreage harvested in Port Houghton will be used to meet the KPC contract, the high-grading would be in violation of TTRA.

ADF&G hopes these comments will enable the Forest Service to design a sale which addresses State coastal resource concerns and balances the varied demands on the public resource. ADF&G is available to work with the Forest Service as plans for this sale progress.

ADF&G appreciates the opportunity to comment.

## Responses to ADGC

63.78	TTRA proportionality requirements do not apply to the Port Houghton/Cape Fanshaw timber sale project because there will be no long-term contract timber sales associated with the project.	Port Houghton/Cape Fanshaw EIS	D-150	DEIS Public Comments
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# Petersburg Vessel Owners Association

POBox232  
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(907) 772-9923 voice/fax

March 26, 1996

M.s. Pamela Gunther  
Project Leader, Parametrix, Inc  
5808 Lake Washington Blvd. N.E. Suite 200  
Kirkland, WA 98033

Dear Ms. Gunther:

The enclosed comments are being submitted in response to the Port Houghton/Cape Fanshaw Dratt Environmental Impact Statement.

The Petersburg Vessel Owners Association represents commercial fishing vessel owners who participate in a range of fisheries including salmon, crab, herring, halibut and sablefish. Many of our members have spent a significant amount of time fishing in the project area and for some, it constitutes a sizable portion of their yearly income. We have many concerns about the proposed sale including the effects on anadromous fish habitat, possible loss of anchorages, effect on herring spawn areas, loss of fishing opportunity, effect of bark deposition on fish resource, and increased competition for resources.

## Purpose and Need:

We question the need for this large a volume from this sale. The original Port Houghton timber sale, planned in 1982, was for 43 MMBF. At that time both the Sitka pulp mill and the Wrangell sawmill were in operation. Apparently, 43 MMBF satisfied the "direction contained in TLMP" at that time, so we question why the sale was tripled. In volume, PVQA is not opposed to a sale in the project area but believe this is a fragile area and cannot sustain a sale of this magnitude without resulting in significant damage to the area. We request that the FEIS include a true range of alternatives including volumes of less than 116 MMBF.

According to the draft document, "the Port Houghton/Cape Fanshaw project is expected to provide between 100 and 125 MMBF of timber (net sawlog volume)." The volume does not include pulp and utility logs and does not provide the public with an accurate indication of how much timber is actually going to be harvested from the project area. What is the actual volume (sawlog, utility, and pulp) that the Forest Service plans to offer if this sale occurs?

64.1

64.2

Responses to Petersburg Vessel Owners Association

64.1 Refer to response to comment 5.1.

64.2 Refer to response to comment 58.1 and to revisions to Chapter 2 of the Revised DEIS.



Responses to Petersburg Vessel Owners Association

64.3 Refer to response to comment 3.3 and revisions to Section 1.1 of the Revised DEIS.

64.4

The objective of fisheries field surveys conducted in 1994 was to evaluate habitat quality. Information on population size and commercial fisheries use of the project area was obtained from ADF&G. Information on recreational use was obtained from conversations and surveys from outfitters. Information on fisheries over the entire year is provided in Section 3.2. Winter surveys were conducted in February 1998. Scoping meetings, DEIS public meetings, and DEIS comment letters can be used by agencies, private companies, environmental groups, and individuals to provide additional information to the interdisciplinary team about winter use of the project area and locations. The Petersburg Vessel Owners Association (which has members who fish in the area) has the opportunity to provide supplemental information concerning high-use areas, number of participants, and nature of activity.

While the sale was originally slated to go to independent operators, much of the purpose and need seems geared toward justifying awarding the sale to KPC. The DEIS specifies that KPC's current timber supply, as of Oct. 1, 1995, is 145 MMBF and the maximum volume of timber anticipated in fiscal year 1996 is about 140 MMBF. 171 MMBF in 1997, and 154 in 1998. Given that the maximum average harvest rate for KPC is 192.5 MMBF, the timber supply at the end of 1996 would be 92.5 MMBF (as opposed to 82.5 MMBF as stated in the DEIS). 71 MMBF at the end of 1997 (not 61 MMBF), and 33.5 MMBF (not 23.5 MMBF) in 1998.

Granted these figures would still fall short of the meeting the long-term contract objectives but the DEIS goes on to say that even though there is about 185.7 MMBF in new timber projects being prepared in the contract area, because of the amount of time required to prepare new offerings in accordance with applicable laws, none of this volume is projected to be available until after fiscal year 1997. Consequently, additional timber from outside the KPC contract area is needed. . . . The Port Houghton/Cape Fanshaw sale would also not be available until after fiscal year 1997. So we fail to see how this sale would alleviate the problem the Forest Service will have in meeting its timber supply objectives in 1996 and 1997.

According to the five-year timber schedule for the Tongass, during the three years (1998-2000) when this project is scheduled to be made available to KPC, the total offerings from the Tongass to KPC for all three years is scheduled to be 635.7 MMBF. This averages out to approximately 211.9 MMBF per year. An average of 16.4 MMBF more than the maximum average harvest per year of 195.5 MMBF and, 26.5 MMBF greater than KPC's average annual harvest rate over the last five years of 185.4 MMBF. This volume does not include the Port Houghton/Cape Fanshaw timber sale. Does the planned schedule of offerings for 1998-2000 described above meet the three-year timber supply objectives under the terms of the long-term contract without the Port Houghton/Cape Fanshaw proposed timber sale? What is the minimum amount of timber the Forest Service is required to provide KPC under the terms of the long-term contract?

For the reasons stated above and because we believe the adverse effects of timber harvesting would be somewhat mitigated if the sale were smaller and spread out over a longer period of time, PVOA does not support using timber from the Port Houghton/Cape Fanshaw sale to meet the needs of the long-term contract with KPC.

Issues Not Addressed in the EIS in Detail:

**Field Studies:** The lack of field surveys during the winter months is of particular concern to the commercial fishing industry. Commercial fisheries occur in Port Houghton during the winter months, specifically crab, shrimp, salmon, and herring fisheries. Without winter surveys, the DEIS lacks any information about these fisheries, the number of participants, the high-use areas, the nature of the activity which occurs in the project area which may be affected by the proposed action. Winter fisheries are very important to our community because they provide income and employment

64.4



Responses to Petersburg Vessel Owners Association

Refer to revisions to Section 1.6 of the Revised DEIS for a discussion on the Goldbelt Inc. land exchange.

Refer to response to comment 35.9. Bridge and culvert design work is not conducted until project implementation. Any notations on bridge location or size is preliminary. All roads have been flagged in the project area, and stream crossings were evaluated by a fisheries biologist. All stream crossings are shown on project maps.

64.5

64.6

opportunities during the "off-season". We believe this is a serious omission in the DEIS and an effort should be made to rectify the situation. This is also particularly disconcerting since this very concern was brought to the attention of Parametrix and the Forest Service at the scoping meeting and more recently at the substance hearing in Petersburg. We find it difficult to believe that the Forest Service can make a "reasoned choice" among the alternatives, particularly where to locate the LTF, without any first-hand knowledge of the activity which occurs in the project area during the winter months.

**64.5** Goldbelt, Inc. Land Exchange: PVOA has asked to be kept informed of any developments in a land exchange between the USFS and Goldbelt, Inc.. It is our understanding that an agreement to initiate has been signed for uplands on Laura's Creek, but that the Forest Service has no interest in trading lands in Port Houghton to Goldbelt. And, while it may just be a question of semantics, the DEIS states that "once the Agreement to Initiate is finalized...", the word "once" implies that it is just a matter of time before such document is signed. What is the Forest Service's position on this proposed exchange and is the agency considering signing an Agreement to Initiate with Goldbelt, Inc. for lands in the project area?

**Alternatives:**

According to 40 C.F.R. Section 1502.20, the Forest Service is required to "rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." We do not believe the DEIS represents all the "reasonable alternatives" for Port Houghton considering the importance of this area to the commercial fishing industry. The narrow range of action alternatives in the DEIS imply that the Forest Service has already made a decision, without the necessary public process, that it will offer at least 116 MM BF from the project area. The Forest Service is making a decision without exploring and evaluating the potential benefits for other users of the project area of a lower volume sale. It is disappointing to see the narrow range in the DEIS because this concern was raised at the public scoping meeting in Petersburg and is not addressed in this document. We encourage the Forest Service to consider a full range of alternatives for this sale, including volumes less than 116 MM BF.

**Alternative B.C.D.E.:**

PVOA cannot support any of the alternatives in the DEIS. We do not believe the Forest Service can advocate a harvest of this size and protect important marine resources and fish habitat, particularly over the long-term. We are particularly opposed to any and all timber harvest within, and to the east of the Sandborn Canal watershed. The road summary cards are full of "red flags" because of soil instability and difficult stream crossings for that area. It is obvious that the adverse terrain and the necessity to maintain important fish habitat in the Sandborn watershed are not conducive to timber harvest in that area.



Responses to Petersburg Vessel Owners Association

Actions Common to All Action Alternatives

Roads: If this sale proceeds, PVCA would support the decision to use bridges where fish habitat protection is necessary and request that the Forest Service use bridges for all crossing of class I and about 50% of class II streams as proposed in the DEIS. Bridge locations should be noted on the unit summary cards. Also, road cards should reflect the type of culvert being used at each stream crossing. Have all roads been surveyed in preparation of this DEIS, so all possible stream crossings are noted in this document?

Comparison of Alternatives by Identified Issue

64.7

Issue 3: Marine Values: According to the DEIS, "Commercial fisheries would be temporarily displaced while barges move through Port Houghton", and later in Chapter 4, "At least five or six tugboats and/or barges would be expected to navigate Port Houghton on a weekly basis during the peak harvest period for the one or more timber sales that could result from this project." Since there is no discussion of which fisheries may be displaced, for how long, or what you mean by displaced, it is very difficult to comment on this statement. Some fisheries in Port Houghton go on for weeks or months, while others are open for a number of hours. For example, when the Department of Fish and Game opens Port Houghton for pink salmon, seiners may have only 12 hours to fish in that area. Displacing this fishery would result in considerable hardship for those involved, particularly since many boats from Petersburg prefer to fish in the project area whenever it is open. A barge, on the other hand, could move through Port Houghton at any time during the spring, summer or fall. If this sale occurs, what type of plans does the Forest Service have to ensure that barges will not disrupt a seine opening? Specifically, which fisheries do you anticipate could be disrupted by the barge traffic? What direction will be given to the contractor to avoid displacing commercial fisheries?

Issue 6: Fish Habitat

64.8

The FEIS should include a comparison of the miles of stream buffers for each alternative in order to give reviewers an understanding of the potential impacts to fish streams as a result of the proposed project.

Mitigation Measures

64.9

Marine: The DEIS states that "in-water construction, blasting, and filling should be timed to avoid impacts to marine and anadromous fisheries resources" and appendix K goes on to describe when these activities should be avoided to protect herring spawn and juvenile salmon. When should these activities be avoided to protect shellfish resources? When are shrimp and dungeness molting, mating, at the larvae drift stage, moving into shallower waters? There is no discussion of shellfish in this section and considering the project area is important to commercial crab and shrimp fishermen, we believe this needs to be considered during the planning stage. We

64.7

Refer to response to comment 55.4. Barge traffic should not disrupt commercial fishing.

64.8

Refer to the fish/water quality section of Table 2-5 in the Revised DEIS.

64.9

Refer to marine impact revisions to Appendix K and Section 4.2 (shellfish) of the Revised DEIS.



request Parametrix include a discussion of how to avoid impact to shellfish during in-water construction, blasting and filling of the LTF.

64.10

Fish, Water Quality & Soils: Were the minimum 100 ft. buffers established on all class I and some class II streams laid out to allow for slope along the stream bank? What measures are taken to protect headwater areas?

**Affected Environment:**

Commercial fishing industry: There are several large watersheds near Petersburg, including Hobart Bay, Windham Bay, Chuck River and Port Houghton, which are important to the local fleet and produce a substantial portion of the salmon harvest for Northern Southeast Alaska. Port Houghton and Hobart Bay are unique environments in that they contain the only two salt chucks on the entire mainland coast of Southeast Alaska. During the last few years, Hobart Bay has been logged so extensively that there are numerous landslides in the area and the selge fleet generally avoids Hobart because of the amount of debris in the water, branches etc. The timber harvest in Hobart Bay has resulted in direct loss of fishing opportunity for the local fleet. While we do not anticipate the timber harvest in Port Houghton to be as intensive as what occurred in Hobart Bay, we would like to USFS to take into account that the commercial fleet based in the communities surrounding the project area have already lost fishing grounds and fishing opportunity as a direct result of timber harvest. Just because the timber harvest to the north of the project area did not fall under the purview of the Federal government does not mean it had no effect, or can be completely ignored, when planning another sale in the same area.

64.12

During the scoping process, ADF&G made note of the need for a cumulative effects analysis to consider the effects of the proposed sale "in combination with the effects of past and reasonably foreseeable future sales on the nearby mainland...A key component of such an analysis is an evaluation over the long-term of the habitat condition of adjacent lands including Goldbell lands to the north, which have been extensively roaded and harvested." While the Department was referring to the impact on subsistence, we believe an examination of the cumulative effects of past and future timber sales to fisheries-dependent communities surrounding the project area would be appropriate and should be discussed in the FEIS.

64.13

The DEIS only provide figures of yearly catch rates for finfish and shellfish, ex-vessel price, and total value of the resource in the project area for 1988 and states that it is the "Most Recent Year Available" (table 3-31). It is not clear what table 3-31 is supposed to be showing. Is this the total for one boat or for all boats for an entire season? There is no indication whether the chart represents dollars or millions of dollars? Also, if the point of the chart is to show the value of the seafood harvest, the FEIS would do well just to provide the total value of seafood harvested in Southeast Alaska, and that information should be available for 1995 from the Department of Fish and Game, the Alaska Seafood Marketing Institute, or the Alaska Department of Commerce.

**Responses to Petersburg Vessel Owners Association**

64.10

Buffers established on Class I, II, and Class III streams accounted for slope along stream banks. Increased protection for headwaters was implemented on a unit and road specific basis. Headwater area protection included avoiding Soil Hazard Class III and IV soils in unit and road layout, eliminating parts of units, changing unit boundaries to avoid V-notch headwaters, and special silvicultural prescriptions (e.g., helicopter logging) and logging systems that limit soil disturbance. These logging methods included skyline extension, split yarding, directional felling, and full and partial suspension.

64.11

Any effects on commercial fishing from timber harvest on private land is unfortunate and hopefully was taken into consideration in developing the Alaska Forest Resources and Practices Act and the Alaska Coastal Management Plan. Logging practices on the National Forest, under the Tongass Land and Resource Management Plan and applicable federal laws and regulations, are much more restricted than on private land. No effects on commercial fishing are expected as a result of activities proposed in the Revised DEIS for the Port Houghton/Cape Fanshaw project area.

64.12

The Goldbelt, Inc. harvest was considered as an existing condition for the project area. Refer to the first page of Chapter 3 of the Revised DEIS.

64.13

Refer to revisions to Section 3.2 of the Revised DEIS for additional fisheries information. The Forest Service recognizes the value of the fishing industry to the economy of Southeast Alaska. The Port Houghton/Cape Fanshaw timber sale project is not expected to adversely effect the commercial fishing industry regionally or locally.

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- 64.14

The preference is to obtain data and information as close to the project area as is possible. From published sources, this information was available for the fishing industry but was not available for the timber industry.
- 64.15

Refer to fisheries revisions to Section 3.2 of the Revised DEIS. There is no body of evidence that indicates that, after 40+ years of timber harvest on the Tongass National Forest, the commercial fishing industry has been adversely affected. To the contrary, fish stocks appear healthy. By incorporating BMP's into unit and road design and considering stream buffers required by Forest Plan standards and guidelines and mandated by TTRA, we do not expect adverse impacts to water quality or fish habitat.
- 64.16

Refer to fisheries revisions to Section 3.2 of the Revised DEIS. No effects on commercial fishing, including shellfish, are expected as a result of activities proposed in the Revised DEIS for the Port Houghton/Cape Fanshaw project area.

Another concern is that the DEIS shows the total employment and value of the timber industry for all of Southeast, yet it shows the total employment and value of the commercial fishing industry for the communities that surround the project area. We recommend that the DEIS reflect both employment and value region-wide and locally, as well as expected increase (or decrease) in employment or value region-wide and locally as a result of the proposed action. This would give the public a full understanding of the potential costs and benefits to the region and their community of the proposed action.

64.14

Salmon - According to information provided by the Department of Fish and Game, Port Houghton is a very important area to both trollers and seiners in northern southeast Alaska. The average total peak escapement for Port Houghton since 1985 is about 310,000 pink salmon. The Department estimates that about 620,000 pink salmon were expected to spawn there each of the last 10 years. Some years are much better, 1994's peak escapement was 476,000 with an estimated total escapement of 952,000 fish.

64.15

In 1994 seiners caught 626,000 fish inside Port Houghton, but the DEIS fails to make note that about 6.3 million fish were caught in the rest of district 10. According to ADF&G, a significant portion of the fish caught in district 10 were headed to Port Houghton. Based upon fishing patterns and observations by ADF&G, since Port Houghton had roughly 37% of the escapement in District 10 in '94, it could have easily produced 37% of the catch or about 2.6 million pink salmon. A conservative estimate of total production from 1994, is about 4 million pink salmon from Port Houghton (.95 million escapement + 2.6 million catch in the district + .5 million catch in other districts).

Shellfish - Port Houghton contains productive crab grounds particularly for Dungeness but Tanner and Red and Brown King crab are all present in the project area. Port Houghton is relatively close to Petersburg and provides good fishing grounds close to home which is particularly important for smaller boats, such as those used in the Dungeness crab fishery.

64.16

ADF&G provided landing data for Dungeness crab for the last 15 years, though we only included the last five years below. We do not believe one year can provide decision-makers an accurate picture of the value of this area to the commercial fleet as well as to the processors based in the surrounding communities. The DEIS also fails to state the number of shellfish permit holders in the surrounding communities and the percentage of shellfish harvested in the project area that is also processed in communities surrounding the project area.

Total landings in pounds and ex-vessel value of Dungeness crab from project area

1995 - 40,063	x 1.71 \$/LB. = \$68,507.73
1994 - 14,825	x 1.20 \$/LB. = \$17,790.00



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Refer to response to comments 2.2, 62.10, and 62.12.

64.17

1993 - 22,949      x .93 \$/LB. = \$21,342.57  
1992 - 48,157      x .82 \$/LB. = \$39,488.74  
1991 - 106,057      x 3.72 \$/LB. = \$394,532.04  
total - 281,737      \$541,661.08

Total landings in pounds of Shrimp from project area

1995 - 17,873  
1994 - 11,049  
1993 - n/a  
1992 - 8,434  
1991 - 8,728

Finfish: Total catch of pink salmon in project area (ADF&amp;G subdistrict 34, Port Houghton)

1995 - 601  
1994 - 626,864  
1993 - 17,396  
1992 - 691,942  
1991 - 71,560  
1990 - 15,992

Total catch of pinks salmon adjacent to project area (subdistrict 31, Frederick Sound and Stephens Passage)

1995 - 677  
1994 - 3,924,027  
1993 - 107,882  
1992 - 1,846,993  
1991 - 1,633,023  
1990 - 199,349

(all price and landing information obtained from the Alaska Department of Fish and Game)

**Environmental Consequences:**

Marine: In appendix K, the DEIS states that "preference should be given to onshore log storage and the placing of logs directly onto a barge from land, but this "preference" receives only cursory treatment. LTF's are thoroughly discussed in chapter 4, but no reason is given for why on-shore storage and direct land-to-barge transfer is seemingly not the preferred option. We do not believe it makes much sense to have a stated preference and then not provide any information to support that option. It would seem appropriate for there to be a discussion of the benefits of on-shore storage and land-to-barge transfer in the chapter on environmental

64.17

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consequences.

**64.18** In the discussion on bark deposition and disbursement (p. 4-14), there is no mention of the amount of bark loss which would occur if logs were transferred directly from land to a barge. Keeping logs out of the water would do a great deal to mitigate some of the adverse impacts associated with an LTF. It would limit bark accumulation and perhaps even reduce the amount of tannins and lignins introduced into the marine environment.

**64.19** Also, throughout the DEIS, assertions are made that the area of bark disbursement will be no more than 180 ft. yet the DEIS goes on to state that no water current data is available for Port Houghton. If you are stating that the effects of bark dispersal will be minimal but you have no information regarding water currents, how can you possibly know what the bark dispersal will be for the proposed Little Lagoon LTF, and the other proposed LTF's without that information? In order to make a reasonable decision regarding an LTF and the possible effects of bark disposal, the DEIS should include at minimum information about water currents and tidal action at the proposed sites. Also, what if the dispersal area happens to be within a critical habitat area for shellfish i.e. a maling or molling area? Were surveys or studies done during the maling or molling seasons to identify whether any of the proposed LTF would interfere with these activities?

**64.20** If this sale moves forward, PVOA would like to go on record as supporting the preference stated in the DEIS for onshore storage and placing of logs directly onto a barges. We believe there is a fundamental decision to be made here and it is the responsibility of those preparing the EIS to provide the necessary information to the Forest Service in order to make a reasonable determination of the appropriate type of LTF for this proposed sale.

**64.21** Herring Spawning Areas: We are opposed to locating a floating log camp in a documented herring spawn area in North Arm. Port Houghton is an important spawning area and rearing area for herring. Herring, while traditionally used as bait in the commercial fisheries (several Petersburg fishermen participate in the winter bait fishery in Port Houghton), it is an important part of the food chain. Locating a log camp in that area would preclude herring spawn. According D.H. Hay at the Department of Fish and Oceans in British Columbia, "there is no satisfactory method of replacing lost spawning habitat or enhancing existing spawning habitat. Attempts to move eggs between spawning areas, while successful in the production of larvae, did not lead to the establishment of new spawning runs. An important conclusion from this work is that at the present time there is no reliable way to enhance existing spawning areas or create new ones. Therefore, if herring stocks are to be sustained, it is vital that existing spawning habitat be maintained and protected." (Proceeds of International herring symposium, Anchorage Alaska, 1990). If this sale occurs, we encourage the Forest Service to develop and implement an alternative to locating a floating log camp at North Point these alternatives should be thoroughly discussed in the DEIS.

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- 64.18** Section 4.2 describes the amount of bark loss (about 7 percent) using a bulkhead (e.g., land-to-barge transfer) system. Section 4.2 also estimates the amount of bark deposition and dispersion using a bulkhead transfer method compared to a low-angle slide.
- 64.19** Bark dispersal distances were determined from data collected by federal and state resource agencies and independent researchers who conducted studies on bark deposition rates and dispersal distances at LTF's located in Southeast Alaska. See also revisions to Section 4.2. The strongest current observed in Port Houghton was at the Salt Chuck LTF during periods of tidal exchange. Slow water currents were observed at other potential LTF locations. Based on literature data and observations made by divers on currents and tides during the field survey, the estimate of 180 ft is considered to be about the maximum extent of bark dispersal.
- 64.20** Refer to comments 2.2, 62.10 and 62.12.
- 64.21** No floating camp will be located at North Point.



64.22

Marine Mammals: PVOA is concerned about any negative impacts the proposed action could have on marine mammals in the project area. We recognize the importance of maintaining a healthy marine ecosystem in Port Houghton and in Southeast Alaska and that includes everything from microalgae to humpback whales. Port Houghton is an important feeding area for humpback whales and other marine mammals; we cannot support any activities which would interrupt feeding patterns of whales nor serve to displace them in any way. The statements made in the DEIS, "log rafts through Port Houghton could potentially disturb feeding whales, dolphins, porpoises and harbor seals...log rafting operations from these sites would likely pass directly through the Port Houghton whale feeding grounds." indicate that the proposed action could have a significant negative impact on the marine mammal population in Port Houghton. The FEIS should address the extent the project area is used by marine mammals during the year, provide a thorough review of the potential effects caused by the disrupting feeding patterns over the years, and what options exist for the Forest Service to mitigate the effects on marine mammals.

64.23

Water Chemistry: When considering the effects of leachates from wood and bark debris, some discussion should be directed to the possible effects this could have on finfish as well as shellfish drift larvae. Was any information gathered about whether any of the proposed LTF are located on crab mating areas or contain high concentrations of shellfish drift larvae? Also, why is there no mention that the leachates are toxic to shellfish and finfish? What is the effect to shellfish and finfish if they come in contact with toxic leachates?

64.24

We are concerned that the DEIS made no mention of the recommendations and results contained in the Anadromous Fish Habitat Assessment. One reason for developing the AFHA report was to determine the effectiveness of current procedures used by the Forest Service to protect anadromous fish habitat. According to the report, "current procedures were not fully implemented on all sites in any of the timber sale projects reviewed. Results of the analyses, however, indicated that even completely implementing current procedures would not be fully effective in protecting anadromous fish habitat productivity and salmon and steelhead stocks over the long term." (p. 7, AFHA) In compiling the AFHA report, a thorough literature review was conducted regarding the effects of logging and other forest management activities on Pacific salmon and steelhead habitat. That review revealed, "procedures similar to those currently used to protect fish habitat on the Tongass National Forest (especially buffer strips along fish-bearing streams) after being applied for nearly two decades to similar landscapes and conditions in coastal Washington and Oregon, failed to prevent declines in fish habitat capability, and resulted in increasing and now significant risk to the viability of salmon and steelhead stocks there." and "Timber harvest on unstable slopes and near small headwater streams in coastal zones of the Pacific Northwest resulted in simplified and degraded fish habitats regardless of geographic location."

Despite the information included in the AFHA report, the FEIS makes absolutely no

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64.22

Up to 300 to 350 individual humpback whales occur in Southeast Alaskan waters in summer and fall. Humpback whales feed in the summer, and migrate south of Southeast Alaska in fall to mate and bear calves. Feeding could be disrupted by intentionally approaching whales while feeding and abruptly increasing vessel speed (and therefore engine noise). However, humpback whales have been observed feeding within 100 ft. of pleasure boats in Southeast Alaskan waters (personal observation) and as close to 20 ft. to boats in the Gulf of Maine (personal observation). The Forest Service has developed standards and guidelines applicable to LTF operations to provide for the protection and maintenance of whale habitat (see Appendix K of the Revised DEIS). No significant adverse effect is expected to any marine mammal population from activities proposed in the Revised DEIS.

64.23

Laboratory studies using leachate concentrations higher than found in natural conditions reported toxic effects to shrimp and crab larvae and no toxic effects to salmonids. The study also reported that dilution rates are expected to be greater under natural conditions, and adequate tidal flushing should preclude high concentrations of leachates from developing with intermittent use of the LTF site, and the low timber volume to be transported.

64.24

Refer to the response to comment 12.2.



mention of any shortcomings with current procedure nor any need to strengthen those procedures. The FEIS must discuss the consequences of applying current procedures in light of the results presented in AFHA stating that "current practices have resulted in significant declines in fish habitat capability and resulted in increasing and now significant risk to the viability of salmon and steelhead stocks." And, more specifically, AFHA recommends that the under current direction, the Forest Service should begin to classify streams draining intermittent and ephemeral channels. There is no such classification in the DEIS nor is there any discussion of why it should or should not be considered. AFHA also recommends that Best Management Practices be examined and improved but again there is no information in the DEIS regarding improvement of BMP's.

According to AFHA, there was unanimous agreement that there needs to be increased protection on headwater areas – steep slopes, high-hazard soils, and class III and IV streams. There may not be sufficient information at this time to provide blanket prescriptions for all streams but the agency is still required to provide the public with information regarding the relevance of this "incomplete" information and a summary of existing scientific evidence and the agency's worst case analysis of those impacts. Under 40 CFR Ch. V section 1502.22 regarding incomplete or unavailable information, an agency must make clear that complete information is lacking. Under this circumstance the agency is required to state "the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment and a summary of existing credible scientific evidence which is relevant to significant adverse impacts and the agency's evaluation of such impacts". "reasonable foreseeable is defined as including "impacts which have catastrophic consequences, even if their probability of occurrence is low", provided that the analysis of the impacts is supported by credible scientific evidence." In addition, according to the Council on Environmental Quality summary (Federal Register vol 46, No. 55, p. 18026) the agency is required to "include a worst case analysis of the potential impacts of the proposal and an indication of the probability of their occurrence. NEPA requires that impact statements, at minimum, contain information to alert the public and Congress to all known possible environmental consequences of agency action. Thus, one of the federal government's most important obligations is to present to the fullest extent possible the spectrum of consequences that may result from agency decisions...."

Again, given all this direction for the agency, it is difficult for us to understand why there is no mention of the Anadromous Fish Habitat Assessment in the DEIS. It seems obvious that the DEIS should provide a thorough discussion of the available information, and the possible adverse impacts of the proposed action in light of the findings in the AFHA report. In particular, the FEIS should compare the recommendations in the DEIS with those made in AFHA such as the consequences of not improving BMP's, the lack of consistent protection for Class III streams and headwater areas, and not mapping class IV channels. The FEIS needs to address where the recommendations contained in AFHA were considered or implemented and where they were not and the potential effects of those decisions on the long-term.



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64.25	The percentage of all trees along Class III streams comprised of non-marketable shade trees is not known. Consistent with Forest Plan standards and guidelines, buffers will be provided for Class III streams (as prescribed on unit cards).
64.26	Estimates of sediment yield increases resulting from roads reported in the 1995 DEIS were calculated by comparing annual sediment yields estimated from all proposed roads in a watershed to annual background sediment yield. As a worst case analysis, this model looked at the annual road sediment yield during active timber harvesting, assuming all roads in the watershed would be used for log hauling in the first years after construction. If log hauling traffic in a watershed were distributed over nine years, the annual sediment yield estimated from roads would be much less and model estimates of increases over background sediment yield would also be less.
64.27	The sediment yield increases from roads in Watershed 331 were estimated to exceed 100 percent only under Alternative B in the 1995 DEIS. This indicated that additional measures may be necessary to minimize road sediment yield, protect fish habitat, and comply with water quality standards in the East Fork Negro Creek watershed. These measures could include additional monitoring, suspending log hauling during wet weather, increasing road surfacing standards and maintenance, additional cross drains, and filter windrows near stream crossings etc.
64.28	Concerns with unstable soils are discussed in Section 4.9.3 of the Revised DEIS. The road card quoted in this comment was for an old alignment that was revised due to stated concerns. The current proposed road alignment between units 29119 (168) and 29120 (171) is road 8496002. The card for this road indicates moderate side slopes and no special concerns for soils.
64.29	Road 8496 parallels a stream buffer and may appear to run inside the buffer on some maps. The actual road alignment would be far enough east of the stream to meet or exceed the TTRA buffer requirement.

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health of fish habitat

64.25

Stream temperature and dissolved oxygen: What percentage of all trees along class III streams is made up of non-marketable shade trees? In areas where there are very few non-marketable shade trees, will some marketable trees be left standing to protect fish? We recommend that a certain size buffer strip be left along class III streams (50 feet) to mitigate any adverse impacts to fish from increased stream temperatures of dissolved oxygen depletion. This is consistent with site specific recommendations in the DEIS and the Anadromous Fish Habitat Assessment.

64.26

Road Erosion Sediment Yield: The DEIS states that "road surfaces can continue to produce fine sediments over the life of the road" but the "assumptions used in applying this model (road sediment yield by watershed) ... were based on conditions expected during active timber harvesting in the first years (emphasis added) after road construction." How many years will it take to actually harvest all the timber planned for this sale, versus the number of years considered in the above mentioned model? Under the five-year timber schedule for the Chatham Area, the Forest Service is planning 3 different sales, with each lasting approximately 3 years. Therefore, the proposed timber harvest for this sale would not be completed for at least 9 years. Does this model reflect road sediment yield for the entire time these roads will be in use? How do the results change if the model is altered to take into account the entire lifespan of these roads?

64.27

PVOA opposes construction of roads which could lead to increases in sediment yield above state water quality standards. The DEIS states that sediment yield in watershed 331 will be in excess of 100%, thereby exceeding state water quality standards. This is unacceptable and the FEIS should offer alternatives including alternate routing, increased heliporter logging, or reduced volume to mitigate the amount of traffic planned for this route. If there are no alternatives available to decrease sediment yield, this road segment should be eliminated.

64.28

The DEIS states that the majority of sediment will enter streams because of road traffic, but it does not discuss any concerns with unstable soils. The soil where road 8496 is planned between units 29119 and 29120 is described as having "slopes in the 70-80% range and the bedrock is fine grained sandstone. Orientation of the bedding plane showed indications of mantle creep and large pieces moving downslope in stream channels. The cut bank may be difficult to hold because it will be high and there appears to be some colluvial movement. The distance between the benches at 29119 and 29120 is several hundred feet, which may set this up for a failure. End haul is advisable because of the very steep slopes there is no indication that the soil material on the downslope would be able to support the load." Given the description and the prediction, PVOA strongly opposes the construction of this road segment. We recommend that unit 29119, 29120 and any further units dependent on this particular road segment be eliminated in the FEIS.

64.29

Also, road 8496 near unit 29117 runs inside a 100 foot buffer, we did not see any.



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64.30 This road card has been revised.

64.31 The road cards provided the detailed information for each road crossing. The EIS summarizes overall impacts and discusses site-specific impacts of significance. Detailed road-specific concerns that are not further discussed in the EIS can be mitigated through use of BMPs, final layout design, and/or proper use of bridges or culverts.

64.32 This is a repeat of comment 64.1.1. Please refer to the response to comment 64.1.1.

64.33 This is a repeat of comment 64.1.2. Refer to response to comment 64.1.2.

64.34 Refer to revisions to Section 4.2.1.9 of the Revised DEIS for impacts from logging camps.

explanations or discussion on this provided in the DEIS, the unit card summary of road summary. This road segment violates the Tongass Timber Reform Act which prohibits the current route and offer an alternative route for this segment. If an alternative is available the road segment should be eliminated.

**64.30** Road 8495 has several stream crossings as described in the road summary card. At one point the card states that there are no concerns at station 133+28, but in the following sentence states that "there is concern with the crossing at station 133+28" which is it and what is the concern?

**64.31** There are several other road summary cards that mention concerns over stream crossings of soil stability. Those concerns should be discussed fully in the section on environmental consequences so the public has a full understanding of the implications and possible adverse effects of the proposed action. The descriptions given in the road summary cards are not well written and difficult to understand.

**64.32** Commercial fishing industry: There are several large watersheds near Petersburg, including Hobart Bay, Windham Bay, Chuck River and Port Houghton, which are important to the local fleet and produce a substantial portion of the salmon harvest for Northern Southeast Alaska. Port Houghton and Hobart Bay are unique environments in that they contain the only two salt chucks on the entire mainland coast of southeast. During the last few years, Hobart Bay has been logged so extensively that there are numerous landslides in the area and the seine fleet generally avoids Hobart because of the amount of debris in the water, branches etc. The timber harvest in Hobart Bay has resulted in direct loss of fishing opportunity for the local fleet. While we do not anticipate the timber harvest in Port Houghton to be as intensive as what occurred in Hobart Bay, we would like to USFS to take into account that the commercial fleet based in the communities surrounding the project area have already lost fishing grounds and fishing opportunity as a direct result of timber harvest. Just because the timber harvest to the north of the project area did not fall under the purview of the Federal government does not mean it had no effect, or can be completely ignored, when planning another sale in the same area.

**64.33** During the scoping process, the DF&G also made note of the need for a cumulative effects analysis to consider the effects of the proposed sale "in combination with the effects of past and reasonably foreseeable future sales on the nearby mainland...A key component of such an analysis is an evaluation over the long-term of the habitat condition of adjacent lands including Goldbelt lands to the north, which have been extensively roaded and harvested..." While the Department was referring to the impact on subsistence, we believe an examination of the cumulative effects of past and future timber sales to fisheries-dependent communities surrounding the project area would be appropriate and should be discussed in the FEIS.

**64.34** The FEIS should include a discussion of the increased competition for limited resources which results when a logging camp is established in an important commercial fishing area. The DEIS states that the increased competition should be no



different than those which occurred when the Hobart Bay logging camp was established. Activities at Hobart Bay led to the establishment of a new sport shellfish regulation prohibiting multiple bag limits (personal communication with ADF&G biologist). At one time, residents had a live trap full of dungeness crab, and eventually "shipped out" a substantial amount of crab from the bay. Commercial dungeness fishermen reported that their gear was being pulled by residents of the logging camp and they eventually left the area. Since there is the potential for a similar situation to occur in Port Houghton, we recommend that the FEIS discuss the increased competition for shellfish (and popular sport fish such as Kings and Coho which are also important to the local troll fleet) which occurred in Hobart Bay and discuss the possible adverse effects including loss of fishing opportunity and income to the commercial fleet.

**64.35** Also, since the DEIS states that the Forest Service already anticipates a decline in fish population due to the change in direction of the subarctic boundary current, how important is to maintain the quality of all suitable fish habitat to mitigate the effects of this anticipated decline? Since the Department of Fish and Game has already stated that Port Houghton produces a significant portion of the fish caught in northern Southeast Alaska and in the face of the above mentioned "anticipated decline", what would be the consequences to the commercial fishing industry of degraded fish habitat in the project area?

**64.36** This would be an appropriate place to discuss loss of anchorage sites for the commercial fleet. We believe this concern was raised during the scoping process but it is not addressed in the DEIS. The presence safe anchorages are a crucial component for the commercial fleet to be able to continue fishing in the project area. This concern must be fully addressed in the FEIS complete with locations of commonly used anchorages in summer and winter, and the effects if those anchorages are lost due to LTF's or logging camps etc.

Cumulative impacts:

Under NEPA regulations, the USFS is required to consider "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The DEIS includes no discussion of the cumulative effects of the timber harvest by Goldbelt and the proposed harvest by the USFS on the north shore of Port Houghton in terms of water quality. Also, considering the level of harvest that has occurred, will these streams, particularly those portions containing suitable fish habitat, be able to meet state water quality standards? Did the field team sample these streams as they did the streams on the South shore? If so, what were the results and, if not, why not?

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- 64.35

There are no plans to degrade fish habitat in the project area.
- 64.36

A total of 13 anchorage sites have been identified on Forest Service maps for the project area (Appendix I). This information does not show anchorages at any of the LTF sites considered in the 1995 DEIS, including the Little Lagoon site described in the Revised DEIS.
- 64.37

Refer to response to comment 57.2. All streams within the unit pool were surveyed on the North Shore. Most streams were Class III or IV. All applicable water quality standards apply to the North Shore area.



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64.38	Class IV streams were inventoried in September and October 1997. Buffers have been provided for all Class III streams. Long-term large woody debris recruitment will continue to occur. Buffers for Class I and II streams provide large woody debris for habitat and stream stability where fish are present.
64.39	Refer to revisions to this unit summary card.
64.40	Appropriate protection for the Class III stream within Unit 27102 would be a buffer to provide shade for this southern aspect stream, and limit soil disturbance and erosion from shovel logging near the stream.
64.41	A no-cut buffer is appropriate for the V-notch, as indicated under Rational for Alternative Selection on Unit 27107 (160). Refer to revisions to this unit summary card.
64.42	Refer to revisions to the unit summary card. Split yarding and buffers for the Class III V-notches in the unit, as recommended on the card, will provide long-term recruitment of large woody debris. The need for additional buffer areas will be more fully evaluated at the time of final layout.
64.43	Refer to revisions to this unit summary card.

We have several concerns regarding recommendations in the unit summary cards. While those listed below are specific to particular units, these same issues can be applied to many of the proposed units. For example, how does split yarding or selective logging provide long-term protection for class III streams as recommended in the AFHA report? We rarely saw any consideration for providing for large woody debris on class III streams, why not? We saw no mapping of class IV streams as recommended in the AFHA report?

Unit 26103 - Under "roads and logging systems" in the unit card summary it states that split yarding on the "Class 3 stream in the west unit...is not feasible" yet under the fisheries/watershed portion of the unit summary card, split yarding is recommended on the class 3 stream "to maintain class 2 habitat." This Unit needs to be reconfigured to implement this recommendation and include a 50 ft no-cut buffer on both streams or the unit should be eliminated. These actions are necessary in order to minimize sediment yield over the long-term and ensure adequate protection for the class 3 streams and the class 2 habitat downstream.

Unit 27102 - This unit is configured without providing any protection to the class 3 stream even though BMP 13.3 "...class 3 stream designated for protection", is recommended. What is the designated protection?

Unit 27107 - The BMP recommendation is that the class 3 stream v-notch be buffered, but buffered is described as "50% of the shade trees" along the stream. Since there is a stated need to provide both water-quality protection (BMP 13.3) and stream channel protection (BMP 13.6), we recommend that a 50 ft. no-cut buffer be placed to minimize sediment yield over the long-term and assist in the entrapment of sediment, slower movement of that sediment through streams systems, and as a source of large wood and nutrient to input to downstream fish habitat.

Unit 27109 - According to the stand characteristics, the class 3 stream on the east boundary is "unstable ..." and fish-bearing streams are directly downstream." The unit card summary then goes to state that there is a 100 ft. buffer on the class 3 stream to the east and that the unit had extended across the stream but was deleted when the stream was found to be fish-bearing. We assume that now it is been reclassified as a class 2 stream as reflected in the field unit card. The unit card summary should also reflect that the east boundary is a class 2 stream.

Also, since the stream is considered unstable, we recommend a no-cut buffer be left on the class 3 stream within the unit to ensure a steady supply of large woody debris which is important for the entrapment of sediment, slower movement of that sediment through streams systems, and as a source of large wood and nutrient to input to downstream fish habitat over the long-term.

Unit 29111 - According to the stand characteristics, "windthrow and soil stability are management concerns by the Class 3 stream courses." and "class 3 stream is over steepened in unit". The decision to clearcut the unit is justified by stating that the "unit was modified to helicopter harvest because of overriding concern to minimize sediment yield." Clearcutting will disturb the greatest amount of area and presents the riskiest means of harvesting on a potentially unstable slope regardless of whether it is done by a helicopter. If, in fact, minimizing sediment yield to the fish-bearing streams is an overriding concern, then the the northern portion of the unit should be eliminated



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64.44	Refer to the unit summary card for revisions. No timber harvesting is planned along the Class III stream adjacent to the northeast boundary of the unit, thus there will be a long-term source of large woody debris for the stream.
64.45	Refer to revisions to this unit card in the Revised DEIS.
64.46	Comments provided do not match the unit number.
64.47	Comments provided do not match the unit number.
64.48	Refer to revisions on the unit card in the Revised DEIS.
64.49	Refer to revisions to this unit summary card.
64.50	Refer to revisions to this unit summary card. The stream to the western boundary is a Class III stream as shown. Class III streams are protected with no-cut buffers.

The windthrow concern should indicate a need for additional protection (greater than 100 ft.) around the class 2 where it enters the unit.

Unit 29113 - Eliminate the northeast corner of unit to provide for a buffer along the class 3 stream. This is necessary to ensure that there continues to be a steady supply of large woody debris over the long-term, which is important for the entrapment of sediment, slower movement of that sediment through streams systems, and as a source of large wood and nutrient to input to downstream fish habitat.

Unit 29114 - The unit summary card states that there are several class 3 streams, but none are noted in the field unit card, nor are there any recommendations for long-term protection of those streams (i.e. no-cut buffers).

Unit 29117 - "No cut buffers were considered for the three class 3 streams within the unit but were not planned because of high blowdown potential" and "blowdown may be a problem in this leave strip." Why were no-cut buffers being considered for these streams? While significant blowdown does defeat the purpose of having a buffer strip, the decision to not provide any protection when there is cause to do so does not resolve the problem either. Full suspension prevents degradation to the channels and provides protection while the harvesting is going on, but does nothing to provide long-term protection to the stream and to the fish-habitat downstream after the harvest has been completed, nor will it provide necessary source of large woody debris. This unit should be eliminated.

Unit 29120 - This unit contains several high-gradient class 3 streams. The unit summary card, specifically the rationale section, states a "no-cut buffer along the class 3 bisecting the unit reduces [sic] watershed and wildlife habitat." We suspect the sentence needs to be rewritten.

Also, since there are several class 3 streams, will all of them receive a no-cut buffer? check out temporary road to east side of unit.

Unit 29122 and 29123 - While we encourage the USFS to use alternative harvest methods, like helicopter harvest systems, the class 3 stream within the unit is steep and requires protection to minimize sediment yield into the stream over the long term. A no-cut buffer of 50 ft. should be prescribed to ensure adequate entrapment of sediment, slower movement of that sediment through streams systems, and as a source of large wood and nutrient to input to downstream fish habitat.

Also, since clearcut with reserves is the selected harvest strategy, then the USFS should direct that reserves be maintained along these class 3 streams and, considering the steep slopes, the stream headwaters.

Unit 29125 - Although the unit summary card describes 4 class 3 streams within the unit, there is no indication where these streams are on the field unit card. Also, why are these streams being given a 50 ft. no-cut buffer while others are not afforded that same protection: what is the management concern?

Unit 311144 - The unit summary card (stand characteristics) refers to a "class 2 stream in a V-notch border(ing) the west unit boundary", but there is no class 2 stream shown on the field unit card. Also, the summary card states that "protection of the Class 3 stream on the west unit boundary will mitigate downstream impacts on fisheries and watersheds. These areas were avoided." Is the stream on the western boundary a class 2 or 3 stream? And, while we appreciate the "protection of the class 3 stream", there are two more class 3 streams within the unit that are not afforded any long-term



Responses to Petersburg Vessel Owners Association

64.51	64.51	As shown in the unit design card for this unit, sensitive Class III streams were avoided and placed outside of the unit. Buffers have been provided to provide reserve trees for large woody debris.
64.52	64.52	Refer to revisions to the unit card. Class III streams would have no-cut buffers.
64.52	64.53	For unit 321017, landings have been located to allow for split yarding of the streams of concern. The proposed logging system would allow the retention of reserve and wildlife trees. For unit 321199, split yarding is proposed at the one significant Class III stream, and partial suspension is proposed over the other minor stream. The area north of the unit was dropped due to slopes over 70 percent, not because of instability. Evidence of unstable soils was not found in this area. For unit 321019, the small length of Class III streams within the unit is probably feasible for split yarding. This will be more fully evaluated at the time of final layout and any necessary minor adjustments made. For unit 321018, evidence of unstable soils was not found in this unit.
64.53	64.54	Refer to the revisions to Section 4.6 of the Revised DEIS. There is no implication that caterers at Hobart Bay supply illegally caught fish to loggers.

protection such as a no-cut buffer of 50 ft. to ensure adequate entrapment of sediment, slower movement of that sediment through the stream system, and as a source of large wood and nutrient to input to downstream fish habitat.

Unit 311146 - Settling boundaries and yarding away from the streams will protect the class 3 streams while the timber harvest is occurring, but it does nothing to provide long-term protection of the downstream habitat. By stating that "fish habitat will be maintained by protecting streams and v-notches" what specifically will be done. Does this mean that the reserve trees will be kept along side the streams to provide a source of large woody debris. Also, how will yarding be kept "well-away from the streams" in areas 7 and 5 of the unit?

Unit 321007 - In the unit summary card, BMP 12.6 is identified and states that the "class 3 area to the east avoided during layout." While one of the streams to the east was avoided, there is another class 3 stream which is literally the east unit boundary. There doesn't seem to be any management prescriptions to protect this stream. This unit is in a moderately steep area, and the class 3 stream flows directly into a class 2 stream. The unit needs to be reconfigured to include a buffer around this stream to minimize sediment yield into the stream over the long-term and to provide a source of large woody debris.

Unit 321017 and 018 and 019 - This unit should be eliminated the class 2 streams at the northwest and southwest corners of the unit are fed by "several small high-gradient channels in which there is a high erosion potential." Also, the eastern boundary is bordering on steep, unstable slopes. There is evidence of landslides to the south of the unit. Even though the management action calls for reserve of individual trees below the road and along high gradient creeks below the road when feasible, we do not believe the risk to the class 2 habitat warrants the cut, especially since the stand is considered "diseased" with high defect and significant amounts of cedar decline, mechanical/animal damage" and "past its peak productivity". Clearly, the value in this unit is found in its role of minimizing sediment yield into streams, preventing erosion, and providing large woody debris to the stream system.

Eliminating this unit could also eliminate unit 321199. Unit 321199 has 2 small class 3 streams, which are not marked on the field unit card, bisecting the unit from east to west and class 2 streams directly to the west and to the south. Just north of the unit, the slope is greater than 70% and shows evidence of instability. Merely eliminating the middle portion of the slope, does not necessarily remove the potential for additional slides, particularly since there is another unit directly above unstable area. In other areas of the mainland, particularly Hobart Bay, many slides occur above the timber harvest area. Considering the amount of class 2 fish habitat directly downslope from this unit, we believe it should be eliminated.

## Substance:

According to the DEIS, subsistence resources may be affected by "caterers' harvesting fish or wildlife for use by the logging camp. We do not believe this is an appropriate use of a subsistence resource. The caterer is being paid to provide sustenance and would not qualify to harvest fish (or any other resource) under the state's subsistence regulations. Any commercial harvester of fish and game must be have a commercial



Responses to Petersburg Vessel Owners Association

64.55

Comment noted.

permit. It is disturbing to see the USFS condone this illegal behavior and we believe this needs to be discussed in the FEIS. Particularly, how does the USFS plan to enforce regulations prohibiting this type of activity if this sale does occur?

64.55

Subsistence hearing in Petersburg - For the record, we would like to note that Silkine area supervisor Gail Kimball was not in attendance to hear public comment at the Petersburg subsistence hearing, although the meeting was well-attended by the public. Also, at least two attendees chose not to testify because it was clear "no one wanted to hear what I [sic] had to say".

Thank you for the opportunity to comment.

Sincerely,

Liz Cabrera  
Director



Abigail Kimbell, Forest Supervisor  
Sukine Are, Tongass National Forest  
Petersburg, Alaska

Fairbanks, Alaska  
March 26, 1996

Dear Ms Kimbell 

This is my comment on the Port Houghton Timber Project. I urgently ask you to adopt the No Action Alternative. Port Houghton is one of the last major unlogged high volume old growth timber areas. When I was growing up in Petersburg in the 1950's the area was so famous for salmon that there was a special color of dull green for "creek robbing" boats, called "Port Houghton green." (Of course after statehood most seiners painted their boats white and "went straight.") I am sick at heart to think that a place that has been prized by Native and white people for so long is about to be ruined. The fact that this area is adjacent to an area already been heavily logged by a Native corporation makes it even more imperative to preserve it.

This timber sale should, at the very least, be delayed until the Tongass Land Management Plan is revised. The DEIS does not adequately address the concerns raised in the Report to Congress 1995 - Anadromous Fish Habitat Assessment, nor does it follow the recommendations of the Review of Wildlife Management and Conservation Biology.

The studies show that we cannot forever have our cake and eat it. The Forest Service is responsible for actions that will result in serious degradation of our wildlife and fisheries.

Should this terrible action go forward, I urge the following:

- Get rid of the timber target. Planning should proceed without a board foot harvest target, so that the plan can truly be appropriate to the land.
- Adequately protect fish resources, tourism, hunting, recreation and other multiple uses of this area.
- Preserve the famous Sanborn Canal watershed and all lands to the east including the Salt Chuck, and protect the Upper Port Houghton Area.
- No timber for Ketchikan Pulp. This is outside KPC's contract area. The consequences of over-harvest in KPC's area need to be faced squarely by KPC and the Forest Service. Small sales for small local operators should be offered instead.
- Address the questions in the Anadromous Fish Habitat Assessment and the Review of Wildlife Management and Conservation Biology.

Yours truly,



Judy Brakel  
Box 94, Gustavus, Alaska 99826

#### Responses to Judy Brakel

- |      |  |
|------|--|
| 65.1 | Your comments will be considered for the ROD selected alternative.<br>Refer to the response to comments 13.2 and 30.3. |
| 65.2 | Refer to response to comment 10.2 and 12.2.  |
| 65.3 | Refer to response to comments 5.1, 13.2, 12.2, and 3.3.  |



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March 26, 1996

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re: Port Houghton/Cape Fanshaw Timber Sale DEIS Comments

Dear Ms. Gunther, Mr. Morrison, Ms. Kimbell, and Ms. Grantham:

Following are comments submitted on behalf of the Southeast Alaska Conservation Council (SEACC) and Narrows Conservation Coalition (NCC) for the Port Houghton/Cape Fanshaw Timber Sale Draft Environmental Impact Statement (DEIS). SEACC is a broad-based coalition of 15 volunteer citizen organizations in 12 communities ranging from Ketchikan to Yakutat, including Narrows Conservation Coalition. Narrows Conservation Coalition is a grassroots conservation group based in the cities of Kupreanof and Petersburg, Alaska and the greater Kupreanof and Mitkof Islands. Our members, and others, use the Port Houghton Project Area for the commercial, subsistence, and recreational use of fish and wildlife, charter operations, and other purposes.

SEACC and NCC have been involved with the planning process for this sale from early on. We submitted extensive scoping comments, attended public scoping hearings, organized an informational forum on anadromous fisheries in relation to the Houghton project area, and submitted written comments for additional concerns beyond the formal scoping phase of the planning process.

#### General Comments

The Port Houghton/Fanshaw timber sale is of serious concern due to its potential to seriously degrade fisheries, recreation, tourism, scenic, wildlife and subsistence uses



Note	Enclosures with this letter are exhibits, letters, reports, and articles which are included in the planning record.
66.1	Refer to response to comments 10.2, 5.1, and 13.2.
66.2	Refer to response to comment 10.2.
66.3	Refer to responses to comments 3.3, 10.2, 12.2, 17.1, and 64.36 No significant impacts are expected to commercial fishing or charter operators and Little Lagoon is not noted as an anchorage.
66.4	Opposition to a state land lottery has no bearing in the decision to timber harvest on National Forest land in the project area.

of the area. Local residents rely heavily on this area to provide their livelihoods as well as meet sport, subsistence, and recreation needs. As you are probably aware, the study area is unequalled for its beauty, abundant and diverse fisheries and wildlife, and recreation and tourism opportunities. The Forest Service proposes to destroy more of these opportunities than can possibly be created by logging 122 mmbf net sawlog of old growth from the project area and building their spaghetti-like network of 89 miles of road to accomplish the purpose.

SEACC and NCC can support smaller scale-sales in this project area that are designed to provide timber to small local operators in Petersburg over the long-term. At this time, pending completion of the Tongass Land Management Plan (TLMP), we believe the 25 mmbf scheduled for logging sale preparation in the 1986 TLMP Amendment for Management Area C14 (Port Houghton) can be "consistent with providing for the multiple use and sustained tied of all renewable forest resources," as required by Section 101 of the Tongass Reform Law. Such sales should be designed to safeguard huntable and fishable populations of wildlife and fish for all commercial, sport, and subsistence users, and protect the valuable scenic, marine, fish and wildlife values in this highly scenic estuary and bay system.

For example, we believe that small-scale sales on the North Shore of Port Houghton are consistent with the above objectives. Timber volume on the north side of Port Houghton could be offered to local independent operators and hauled out utilizing Goldbelt's existing LTF at Hobart Bay thereby eliminating the need to construct any new LTF's in the project area. As noted below, however, because the information and analysis presented in the DEIS is so flawed, we cannot support any of the action alternatives in the DEIS. A supplemental DEIS is required, the release of which should await completion of the Tongass Land Management Plan (TLMP) Revision this summer.

The TLMP Revision should place Sandborn Canal and watershed and all areas east of Sandborn including North Arm and the Salt Chuck strictly off-limits to logging due to potential severe impacts on anadromous fish stocks and other uses of the area. We support the use of a small barge to remove any old growth that cannot be hauled out using the existing LTF in Hobart Bay. The construction of new LTF's in the project area is a bad idea because of impacts to commercial fishing, charter operators, and available anchorages. Although we believe some logging can take place in the project area for local independent operators we do not support the unsustainable rate of logging proposed for the project in order to satisfy the rapacious appetite of Ketchikan Pulp Corporation, a convicted felon on probation for dumping toxic sludge into Ward Cove near Ketchikan. Any timber sale offering in the project area should be awarded solely to independent operators and in drastically smaller volumes over a longer period of time.

SEACC, NCC, and Petersburg and Juneau residents have a long history of supporting protections for the Houghton/Fanshaw area. In the 1980's local residents



overwhelmingly opposed a State of Alaska land lottery proposed for the Houghton/Fanshaw Area. Although Parametrix contractors were asked during the 1994 scoping hearing to investigate the record pertaining to this land lottery, no mention was made in the DEIS concerning local residents' previous opposition to development of the area in the form of a land lottery.

SEACC and NCC submitted extensive scoping comments for the proposed Houghton/Fanshaw timber sale.<sup>1</sup> As stated in our scoping comments we geared most of our statements in response to the anticipated Forest Service boilerplate treatment of issues so often seen in many other Draft and Final EIS's, and the fact that the entire sale was laid out prior to any public input. Our intent was to elevate the normal progression of public comment and agency response to a level where meaningful dialogue would surface rather than the standard treadmill process all parties have become increasingly frustrated with. However, the Forest Service simply failed to address or respond adequately to many of the significant concerns raised and questions asked in our scoping comments. We therefore re-submit these questions in the hopes that the Forest Service will acknowledge them and respond adequately.

In 1989, the U.S. House of Representatives designated a large portion of the project area (VCU's 79-84) as the Port Houghton-Sandborn Canal Wilderness Area in its version of the Tongass Timber Reform Act (TTRA). There is no acknowledgement of this important fact in the DEIS, nor is a map included depicting the area endorsed by the U.S. House despite NCC's specific request that such information be included. While Wilderness protection was dropped in the final compromise TTRA bill in 1990, the Forest Service still has a responsibility to protect the long-term health of fish and wildlife in the area and to manage the area for the long-term benefit of all its uses, including commercial and sport fishing, hunting, tourism, recreation, and subsistence. According to Congressman George Miller, House floor leader of the Tongass Timber Reform Act, in his statement to the U.S. House of Representatives, just prior to passage of the Act:

*"It is important to note that the areas which have not been protected by the Conference Committee remain subject to the Tongass Land Management Plan Revision and may be placed off-limits to commercial timber harvest in that process." [Cong. Record, No. 149-Part III, October 26, 1990].*

<sup>1</sup> See Letter from SEACC to Gunther, Parametrix, (Oct. 31, 1994) (scoping comments) and supplemental letter Oct. 31, 1994; accord Letter from Narrows Conservation Coalition to Gunther, Parametrix, (Oct. 31, 1994) (scoping comments); Letter from SEACC to Pam Gunther, Parametrix (Sept. 29, 1994).

- 66.5 All comments provided in public scoping were reviewed in depth, detailed information was used in developing resource reports, and public comments were used in developing action alternatives. Also, refer to the response to comment 58.1.
- 66.6 Refer to Section 1.3.1 for a discussion on wilderness and TTRA. A map is not included as it was determined not germane to the current project. The new Forest Plan protects a significant portion of the area included in the House bill.



66.7 Refer to response to comment 58.1. The NEPA process begins with the identification of a proposed action timber sale. To display to the public a realistic proposed timber sale action, the Forest Service chose to develop a comprehensive inventory of the project area including potential units and road locations prior to beginning the NEPA process. Timber sale layout occurs during implementation after a ROD.

Port Houghton/Cape Fanshaw EIS D-172 DEIS Public Comments

Specific Comments

66.7 Failure Of The Forest Service To Conduct An Early And Open Public Scoping Process Violates NEPA, ANILCA, And TTRA.

Although the Forest Service awarded the contract for this timber sale on December 3, 1993, and according to Pamela Gunther, field work for the sale was completed by September 1994, the first time public scoping began was during the fall of 1994. We are dismayed at the total exclusion of the public during the early phases of the planning process for this sale. The Forest Service and Parametrix, in their "collective decision" (P. Gunther, Petersburg Scoping Meeting, September 27) not to notify the public concerning the sale, violated NEPA /CEQ regs which mandate the Forest Service to conduct an "early and open process for determining the scope of the issues". (See 40 C.F.R. Sec. 1501.7).

The Forest Service's own NEPA Revised Policy and Procedures indicate that direction for scoping of proposed actions was placed in the FS Manual and Handbook, Chapter 10 "to emphasize that scoping is an integral part of the environmental analysis and that involving the public early in the environmental analysis and documentation of proposed actions are important. Almost all who commented on scoping supported its *early and expanded* use to identify issues and to focus on the relevant environmental analysis and subsequent determination." A flow chart included in the Revised Procedures depicts that the environmental analysis is conducted *following* scoping. (See Federal Register, Vol. 57, No. 182, September 18, 1992, 43181 and 06). [emphasis added]. Also, a flow chart provided by the contractor's at the September 27 public scoping meeting depicted the "Technical Analysis" and "Public Scoping" would begin simultaneously; i.e., "Contract Awarded" and "Interview Public" begin at the same time. (Port Houghton EIS Overall Process, Figure 1-1).

What possible rationale, law, or specific agency policy authorized the decision to layout the timber sale in advance of scoping? One scenario we have been told by the Stikine Area NEPA coordinator (personal communication, May, 1994) is that by laying out the sale in advance of scoping, the public would be given "something tangible to react to". Although this rationale is flawed and contrary to NEPA, we wonder why the only tangible product of the 1994 extensive field analysis was a one page map insert in the scoping brochure depicting the unit pool and "one approach" to fulfilling the purpose and need of the project; i.e., timber production. No topographic lines, fish streams, wildlife habitat, sensitive viewsheds, recreation areas, etc. were identified. The Forest Service may argue these parameters are what should be included in the EIS, which is exactly the point. The environmental analysis, including road and cutting unit layout, must occur following scoping.

A scoping update issued by Parametrix during March 1995, identified several issues resulting from public scoping. In particular, according to the update:



"Several comments asked why public scoping was held after field studies. Formal public scoping was conducted after field studies to enable the interdisciplinary team to become familiar with the project area....and share field knowledge with scoping participants." (emphasis added).

66.8 Public scoping comments regarding requests for additional information were reviewed to identify the most optimum source for obtaining information. It was determined that much of the additional information requested was already available from agencies.

66.8 After reviewing this DEIS, it certainly would have been more helpful if local citizens had shared their "field knowledge" with the IDT before field work began. Had formal public input been sought prior to Parametrix laying out of the timber sale, significant issues would not have been overlooked. The scoping update also indicates that public requests for additional information by the public were "not considered to be 'cost effective' in relationship to the importance in making a reasoned choice among alternatives."

We disagree! Whether or not further investigation is cost effective for Parametrix is beside the point. The Forest Service has an obligation to direct the contractors back to the field to conduct further studies of these significant issues. Several requests for investigation of significant issues identified during the public scoping process have fallen on deaf ears. Evidently, laying out of the timber sale prior to public input was for the convenience of the contractors and Forest Service and totally countermands the intent of scoping as identified by NEPA. We suspect one reason Parametrix was not ordered back to the field to conduct additional studies was governed by the fact that a "Change Order" of the Parametrix contract would have been required which the FS was unwilling to undertake due to time and budgetary constraints.

66.10 Refer to response to comment 66.8.

66.9 Although the Forest Service was in the "analysis" part of the Houghton/Fanshaw sale planning for several months prior to scoping, by designating a scoping deadline of Oct. 31, they limited the public to barely over one month to not only identify significant issues, but also to a "react" to a pre-analysis: i.e., road system and cutting units already laid out on the ground. According to Ms. Gunther, during the Petersburg scoping meeting, comments received after that date would not be given the same attention as comments received prior to that date.

Rather than providing the public with an open and fair opportunity to define the scope of the project, the Forest Service has already determined the scope of the project, laid out the roads and units and decided on harvest methods. The extensive road system previously laid out precludes any serious consideration of more than a minor amount of helicopter yarding. Any alterations to the basic plan as already laid out will once again be just fine tuning of a pre-analysis decision already made.

66.10 Although participants at the 1994 Petersburg scoping meeting pointed out at least two significant issues (more were identified following the meeting) overlooked by the analysis team, Ms. Gunther admitted during the Petersburg scoping meeting that they had no intention of doing any additional fieldwork. Because the FS has timber targets and a very specific timeline in which to meet those targets, any delays imposed by "additional fieldwork" were vigorously avoided by the Forest Service.



66.11

Council on Environmental Quality (OEQ) regulations 40 C.F.R. 1502.2 (f) require that agencies not commit resources prejudicing the selection of alternatives. Considering the amount of fieldwork completed, ahead of scoping, it appears the FS made the decision to log the target volume well ahead of any public input. We once again ask that a breakdown of all expenditures be included in your draft analysis for the "pre-scoping" phase of both Forest Service and Parametrix field work and also include administrative work for this sale. Expenditures related to Forest Service tracking and monitoring of the Parametrix contract layout should be included. Please do not dismiss this as "outside the scope" of the analysis since cost effectiveness is integrally tied to the economics of the sale.

Failure Of The Forest Service To Maintain An Administrative Record For The Port Houghton/Fanshaw Project In Petersburg Prevented The Public From Submitting Meaningful Comments.

66.12

Due to the scanty nature of information contained in the DEIS, NCC submitted a request to review the planning record for the sale during the early days of the comment period for this DEIS in order to prepare comments. The DEIS indicated the planning record was available for public review in Petersburg. However, several FS bureaucratic obstacles were encountered that prevented timely and adequate review of the record by NCC representatives.<sup>2</sup> Over 30 days of the 45-day comment period were squandered by the Forest Service in NCC's attempt to review the planning record. NCC finally submitted a letter to Forest Supervisor, Abigail Kimbell by certified mail on Saturday, March 16 with a request to extend the comment period due to the inability to access the planning record. Included in that letter was a request for a copying fee waiver. Our request for an extension was denied in a letter dated March 21, and postmarked and received March 25, one day prior to the comment deadline. Also noted in that letter was a recommendation that the Regional Forester not approve a fee waiver.

We are quite disturbed that the request for an extension of the comment deadline was denied, as well as the recommendation that the fee waiver request be denied. Our initial inspection of the planning record on March 22 proved to be quite useful, however due to time constraints associated with the pending comment deadline, we were unable to thoroughly review the requested documents. In particular, the Logging System Transportation Analysis (LSTA) and related volume statistics were useful in helping to determine how the Forest Service arrived at suitable available acres for the project area - a significant question concerning this sale as noted in our requests for information contained in the planning record. However, we were unable to thoroughly review these records and determine how the suitable available acres were arrived at. The lack of timely access to the planning record in order to submit meaningful comments and the recommended fee denial waiver seriously harm NCC and SEACC.

<sup>2</sup> See Letters from NCC to Kimbell, (February 13, 1996, February 28, 1996, March 15, 1996); Response letters from Kimbell to NCC (February 28, 1996, March 13, March 21, 1996).

66.11

The no-action alternative has been considered equally throughout the EIS analysis. The commitment of any resources for designing the action alternatives has not influenced selection of a specific alternative. Units and roads for any action alternative have been given equal consideration in preliminary field reconnaissance. A breakdown of EIS expenditures is not relevant towards selection of an alternative.

66.12

The Planning Record is in draft form and is available for review by arrangement through Forest Service offices in Petersburg or Sitka. Finalization of the Planning Record will not occur until publication of the FEIS and ROD.



The Purpose And Need For This Project Violates The TTRA, NEPA, ANILCA, And The NFMA.

This proposed timber sale was originally intended to satisfy volume requirements of Alaska Pulp Corporation's (APC) now defunct long-term contract. Although the Forest Service terminated the APC contract for serious breach, the target volume remained essentially the same. See "Schedule of Proposed Actions", October 1, 1994 Chatham Area, Supervisors Office. Prior to cancellation of the APC contract, the Forest Service entered into a \$3.5 million contract with Parametrix to conduct the environmental analysis for the Houghton/Fanshaw Sale. Following termination of the APC contract the FS arbitrarily, in a closed door process, shifted the target volume to satisfy contract commitments for KPC.

66.13

No reasonable explanation is provided as to when or how the Forest Service determined that the purpose and need for this proposed project was to provide approximately 122 mmbf to KPC and/or the Stikine Area Independent Sale Program. Although the DEIS identifies this volume as "net sawlog volume" on pg. 1-1, the DEIS never informs the public how much actual volume is proposed for logging under any of the action alternatives. For example, the 121.5 mmbf identified under the Preferred Alternative is really almost 154 mmbf when utility volume is also counted. The DEIS's failure to fully inform the public as to how much volume will actually be cut under this proposal is grossly misleading and violates NEPA. As noted in the EISs for other KPC offerings within the Ketchikan Area, the selection of a timber target for those projects came from schedules adopted in closed Forest Service meetings in the late 1980's and early 1990's.

A conclusion that this project's unreasonably narrow purpose and need resulted from similar "behind closed doors" scheduling meetings is supported by the lack of any documentation in either the 1979 TLMP, as amended, or the SDEIS for the TLMP Revision identifying this precise timber target, from this precise project area, at this precise time. In fact, the draft sale schedule contained in the 1991 SDEIS for the TLMP Revision does not include any sales in this project area until 1999 ! According to the SDEIS TLMP Revision, the Forest Service intended to offer the "Port Houghton #1" timber sale to APC in 1999 (65 mmbf in management area C14), "Port Houghton #2" timber sale to APC in 2000 (65 mmbf in management area C14 ), and 17 mmbf to independent operators in 1999 (in management area SO1).

The 1991 draft Revision is just that-- a draft and obsolete as well. We request that letters from Secretary Glickman, Undersecretary Lyons, and Regional Forester Janik3

66.14

3 Letter from DOA Secretary Glickman to Senator Hatfield. Chairman of the Senate Committee on Appropriations (Aug. 4, 1995); Letter from DOA Undersecretary Lyons to Senator Hatfield. Chair of Senate Committees on Appropriations (July 28, 1995); Letter from Regional Forester Janik to Belinda Chase, Editor of Ketchikan Daily News (August 18, 1995); Letter from Regional Forester Janik to Senator Stevens (July 28, 1995).

66.13 The timber sale schedule is flexible relying on the need to supply timber in a timely way for the dependent industry but recognizing that some sales will be delayed due to litigation. Adjustments to the timber sale schedule are therefore made periodically when needed. The 1995 DEIS reported timber volumes as net sawlog without utility. Appendix A included tables showing net sawlog with utility. In response to your concerns, net sawlog with utility volumes are now included in Chapter 2. Also refer to comment 5.1.

66.14 The ROD for the Tongass Land Management Plan Revision was signed in May 1997.



Responses to Narrows Conservation Coalition and Southeast Alaska Conservation Council

66.15	Refer to response to comment 60.5. The range of alternatives in the Revised DEIS is much broader than analyzed in the 1995 DEIS.
66.16	Refer to response to comment 58.3. Also refer to a process description for the Tongass National Forest program and project-specific level analysis described in the Forest Plan (1997) Chapter 1.
66.17	Refer to response to comment 53.5. The Revised DEIS includes determinations that the project alternatives would not cause a significant restriction for any subsistence resources.
66.18	Refer to response to comments 66.13 and 5.1.

identifying the shortcomings of Alternative P from the 1991 draft TLMP Revision be incorporated into the record. As noted by Secretary Glickman, "Since [1991]..., we have gained additional resource, economic and social information... This new information should be incorporated into the plan."

**66.15** This "black-box" process violates NEPA by shielding the most important decisions made in the planning process from any public participation. It further violates NEPA by unreasonably restricting the range of alternatives evaluated in this DEIS.

**66.16** This action violates the process set out in the 1985-86 TLMP Amendment, which remains the controlling Forest Plan. TLMP, as amended, requires a public, mid-level scheduling process that was not followed on the Stikine Area. The failure to comply with TLMP violates the NFMA.

**66.17** Finally, this process violates Section 810 of ANILCA by failing to evaluate alternatives that would avoid restrictions on subsistence resources and uses.

While the Forest Service has the discretion to select the purpose and need for a proposed project, the TTRA restricted this discretion by requiring the Forest Service to only "seek to provide" a supply of timber to KPC or other timber operators, subject to the requirements of other applicable laws, and only "to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources." Therefore, selecting a purpose and need for this project that elevates supplying a specific volume of timber to KPC and/or the independent sale program above the Forest Service's substantive legal obligations "to cause the least adverse impact possible on rural residents who depend upon subsistence uses of the resources [within the project area]," or to provide for viable, healthy populations of fish and wildlife, violates the Section 101 of the TTRA.

**66.18** The "Scoping Brochure" for this timber sale indicates the need for the project is "to provide from 110 up to 125 million board feet ( mmbf) of timber for harvest according to direction described in the Tongass Land Management Plan...." The DEIS (at ES-1) further expanded the purpose and need statement originally cited in the scoping brochure and incorrectly claims that " the TLMP schedules timber sale preparation for all management areas in the project area." (DEIS 1-1). As noted in the 1985-86 TLMP (at p.88) under "Management Activities Scheduled," no timber sale preparation is authorized in Management Area SO1, and only 25 mmbf in Management Area C14 is scheduled to be logged. The current TLMP is the only valid management direction currently existing for the Tongass. The expansion of timber sale preparation activities outside those identified in TLMP is unlawful. Failure to comply with an approved forest plan violates the National Forest Management Act (NFMA), the TTRA, and NEPA.

We request that the arbitrary expansion of the project area and timber volume be treated as a "significant issue," and your analysis include a detailed examination into this major flaw from which all problems identified in this DEIS flow. Additionally, by



proposing to log 154 mmmbf of old growth from the area instead of the originally identified "110 to 125 mmmbf of timber for harvest" the FS has unlawfully exceeded the purpose and need of the project.

66.19

Although we agree that the project area includes areas designated as LUD III and IV in the 1979 TLMP, as amended, these designations remain subject to the site-specific determinations made during project planning, in compliance with NEPA and ANILCA. See *AWRTA v. Morrison*, No. 95-35222, slip op. at 8949-50 (9th Cir. July 24, 1995)(as amended Sept. 28, 1995), [Exhibit 10].

66.20

The purpose and need for this project, as well as the range of alternatives considered in the DEIS, show that the Forest Service has elevated fulfilling the Ketchikan Pulp contract above complying with existing forest management direction and the law. Thus, the purpose and need for this project is arbitrary and capricious and violates NEPA, ANILCA, NFMA, and the TTRA.

Finally, we must express our disbelief that the Forest Service actually intends to offer any of the timber from this proposed project under the Stikine Area Independent Sale Program. The facts show that since 1990 the Forest Service has placed fulfilling long-term contract commitments above all other interests. If recent agency practices are any indication, independent timber operators on the Stikine Area have good reason to wonder if they will receive any wood from the Port Houghton sale, even though the Project Area is outside KPC's primary sale area. If the Forest Service is really interested in providing timber to local, independent operators, then these offerings should be explicitly identified in the supplemental DEIS.

66.21

According to Forest Service timber offering schedules, including the "Five Year Tentative Timber Offering Worksheet" dated December, 1995 a total of 154 mmmbf, not 122 mmmbf is to be logged from the project area, and 93 mmmbf of that volume is to be offered to KPC. The Forest Service must disclose their intent to offer the bulk of timber volume to KPC as well as an accurate accounting of the true amount to be offered including sawlog and utility volume.

66.22

The Forest Service has continually maintained timber schedules authorize the setting of harvest volume independent of the site specific environmental analysis. However, the practice of setting a target volume prior to the environmental analysis for a sale area is contrary to the multiple use and sustained yield of ALL renewable resources. There is no mandate to harvest timber anywhere on the Tongass. In fact, the non-mandatory nature of timber harvest on the Tongass is supported in the Forest Service's own September, 1994 "Interim Habitat Management Guidelines for Maintaining Well-Distributed Viable Wildlife Populations within the Tongass National Forest", Draft Environmental Assessment, which states specific habitat management standards are:

66.19 Decisions about LUD designation are made at the Forest Plan level and are not within the scope of site-specific projects.

66.20 Refer to response to comment 3.3.

66.21 Refer to response to comment 58.1.

66.22 Any target volume identified for a site-specific project is predicated on some level of environmental analysis. Initial target volumes may be based on Forest Plan level inventories of suitable and available timber, which are then refined during project planning. In addition to calculations of suitable and available timber, target volumes reflect consideration of (1) the volume needs of the dependent industry to ensure an even flow of timber; (2) the amount of timber in an area that could be harvested over a reasonable amount of time base on the life of the NEPA documents and timber sale contract time periods allowed to harvest specific volume amounts; and, (3) the interdisciplinary team's ability to produce the required environmental documents cost effectively and in a reasonable time period.



Responses to Narrows Conservation Coalition and Southeast Alaska  
Conservation Council

66.23	Fowells (1965) provides an in depth description concerning the basic factors for the regeneration and growth of forest trees.
66.24	Old-growth timber is synonymous with disease, decadence and a high percentage of pulp quality logs. Second-growth stands can be managed to produce tight grained, high-quality wood and can produce more volume than unmanaged old-growth stands. Refer to the responses to comments 13.2 and 30.3. If implemented for 100 years, the 1997 Forest Plan would leave 84 percent of the commercial grade old-growth forest intact.
66.25	Refer to response to comment 5.1.

"left to the project planning, scheduling, and implementation phases of the Forest Plan implementation. The current Forest Plan does not require timber harvest or other projects to be implemented anywhere on the Tongass National Forest; the land allocations authorizing timber harvest in various areas of the Forest are *permissive*, not *mandatory* (Tenakee Springs et al. v. Block et al.)" [emphasis added]. See also *AWRTAV*, Morrison, No. 95-35222, slip op. at 8949-50 (9th Cir. July 24, 1995)(as amended Sept. 28, 1995).

The purpose and need statement contained in the scoping brochure claims that timber productivity will be "improved" by harvesting mature stands of timber and replacing them with faster growing stands of second growth timber. As we asked in our scoping comments, what is the basis for this claim? How does the Forest Service know that overall timber productivity will really be "improved"?

66.23

For instance, a Forest Service Environmental Analysis (EA) conducted a few years ago for Rynda Island, stated that "although the soil on Rynda is highly productive, timber quality is generally poor. Rapid growth results in producing trees with wide rings which reduces the strength of lumber." It should be noted that the majority of existing stands on Rynda were theorized to have become established as a result of a catastrophic blowdown event approximately 150 years ago. Such stands probably closely resemble the type of forest occurring 150 years following clearcutting, the predominant harvest method on the Tongass today.

66.24

The difficulty that Tongass pulp has had competing regarding the national as well as worldwide pulp market attests to the fact that serious consideration should be given to "managing" stands for their old-growth characteristics. Please do not dismiss these points as "outside the scope of the analysis." For instance, the much sought after, tight grained, high quality wood used in the production of guitar tops can only be produced from old growth Sitka spruce, not punky second-growth. Again, we ask that at least one alternative be developed that employ silvicultural systems which manage stands for their slow growing old-growth characteristics, not just a few "shelterwood" units interspersed in a sea of clearcuts as Alternative B proposes.

66.25

According to the DEIS (at p. 1-10), the 1979 TLMP scheduled timber sale activities in Management Areas C14 (Chatham) and SO1 (Stikine), and a Port Houghton Timber Sale Project Environmental Analysis (EA) was prepared for which a Finding of No Significant Impact (FONSI) was issued August 17, 1983. The 1983 sale offered substantially less volume on a greatly reduced acreage than the current project (45.1 mmbf on 1,721 acres). The analysis did not include any areas east of Port Houghton. However, the sale failed to sell. The FS goes on to claim the 1985-86 update of TLMP did not effect the Port Houghton Project because the area was still identified as LUD III and IV, the project was still scheduled for implementation, and the sale was still active as "shelf" volume. However, the current 1985-86 TLMP as amended did not schedule the release of this "shelf" volume and no decision made prior to passage of the



Tongass Reform Law, can be considered "active," or consistent with today's legal requirements, 13 years later.

66.26 Refer to response to comment 55.9.

The Narrow Range Of Alternatives Considered In The DEIS Violates  
NEPA And Section 810 Of ANILCA.

The FS has limited the public's options, in a closed door process, by predefining a timber harvest volume of between 110 to 125 mmbf prior to public scoping, and limiting action alternatives contained in the DEIS to between 116.1 and 123.2 mmbf. Unless the no-action alternative is selected, the only "choice" for the final decision maker is basically all or nothing. Considering the "timber first" ground record of the Forest Service, there is really no "choice". The only decision will be no more than fine tuning of significant decisions already made outside of NEPA.

The narrow range of alternatives presented in the DEIS represents only a difference of a few percentage points between the highest and lowest target volume. We urge the Forest Service to abandon the pre-NEPA decision to log this volume from the project area regardless of the capacity of the project area to supply that volume of timber or the consequences to the maintenance and enhancement of other important forest values. Both NEPA and ANILCA require the FS to consider all reasonable alternatives to a proposed action. *City of Tenakee Springs v. Clough*, 915 F 2d 1308 at 1311 (9th Cir. 1990) (Tenakee Springs II). NEPA requires that an agency "[r]igorously explore and objectively evaluate all reasonable alternatives" to a proposed action.

The Forest Service's overriding fixation with providing a predetermined volume of timber from the sale area at any cost subverts the basic purpose and rationale behind NEPA. The agency's stubborn insistence on adhering to an output-fixed purpose and need unreasonably and unlawfully constrains the agency's choice of the range of alternatives considered. This approach to project planning turns proper NEPA analysis on its head and truly "puts the horse before the cart." NEPA recognizes that a detailed exploration of the full range of reasonable alternatives to a specific project before an agency becomes locked-into specific target outputs is vital to fulfilling the statute's dual purposes. Those purposes are to: 1) provide the decision maker with a full awareness of the range of possible ways of achieving the agency's broader underlying purpose and need for action as well as the varying environmental, social, and other effects of the proposed action; and 2) allow and encouraging the public to participate fully in developing the information and issues to be considered by the agency in making its ultimate decision.

The artificially narrow range of alternatives to be considered by the Forest Service for the Houghton/Fanshaw project fail to respond to either public concerns or applicable legal requirements. It is crucial to note that even if other applicable law and/or resource policies required the Forest Service to provide a preset volume of timber from the project area, NEPA nevertheless requires the agency to consider all reasonable alternatives, including providing a lesser volume of timber from the sale. Upon



enactment of the TTRA, Congress unequivocally directed the Forest Service to seek to meet market demand only after assuring that such activities are "consistent with providing for the multiple use and sustained yield of all renewable forest resources." See TTRA, Section 101.

The Forest Service is therefore mistaken in suggesting that it need not consider any alternative which fails to provide less timber than it claims a "federal or TLMIP mandated obligation" to meet. The Forest Service's efforts to turn Congress' direction to "seek to meet" the market demand for timber into a mandate for meeting some predetermined volume requirement at the expense of all other renewable forest resources contradicts both the plain language and purpose behind Congress' decision to repeal the mandated timber levels of former section 705(a) of ANILCA.

Although we recommended during the scoping stage of the sale that the Forest Service adopt a full spectrum of alternatives that harvest timber volumes in increments beginning at +0 MMBF our request was ignored. We repeat our request that a full range of action alternatives be rigorously explored in any further analysis of this project. Contractual obligations with KPC (and Parametrix) should not stand in the way of providing for a fair and open process which respects the value of all resources.

In fact, the DEIS (at p. 2-6) admits that alternatives requested by the public during scoping for detailed consideration were dropped from consideration "primarily because the volume identified by the purpose and need statement could not be met," ie. logging 110 MMBF + - from the project area. According to the DEIS these alternatives include visual quality, Northern goshawk, and Habitat Conservation Area alternatives. As noted in these comments, requests for consideration of other alternatives were also requested by us and the general public during scoping.

In a letter from Parametrix to the Port Houghton Task leaders <sup>4</sup> dated prior to public scoping, it was pointed out that:

"Implementing the suggested increased buffer width for streams [to account for 100 foot buffer slope distance, etc.], 300 buffer on important wildlife habitat, increased estuary limits, and the habitat conservation areas proposed by VIAPOPS will significantly reduce volume requirements to the extent that we will be unable to meet timber volume requirements of this sale."

Although alerted at this early stage that protective measures for fish and wildlife in the project area could not be achieved due to the timber target volume, the Forest Service

<sup>4</sup> See letter from Gunther, Parametrix to Port Houghton Task Leaders (June 6, 1994).

66.27

This comment is taken out of context and refers to the original unit pool developed before field inventory work. The comment was not about the project area's overall capability of supporting the volume target. Field analysis demonstrated that considerably more timber volume is available.



chose to forge ahead with the ill-conceived Port Houghton plan.

66.28

We must also caution you that use of such a narrow range of volume alternatives is contrary to FS Chief Jack Ward Thomas's December 9, 1993 directive to all employees concerning "Consistent Messages". In that directive, Chief Thomas directed employees to "Implement ecosystem management...." as a primary goal of Forest Service management of public lands. If the FS fails to present a full range of volume alternatives, then they have failed Chief Thomas's directive. Timber harvest volume is THE most influential factor affecting ecosystem management when considering a timber sale. How can ecosystem management be implemented if only one harvest volume is presented? As previously asked please include a full discussion concerning this issue in the supplemental DEIS.

66.29

The range of alternatives considered in the DEIS violates NEPA by failing to include reasonable alternatives resulting from the Forest Service exercising its authority, under the KPC contract or agency regulations, to cancel or terminate the KPC contract, or to debar or suspend KPC's operations under the contract. Under Section B0.7 of the contract, the Forest Service may terminate the contract "upon a determination that Purchaser's operations would cause serious environmental damage ...." The DEIS clearly discloses that KPC continued operations have and will cause serious environmental damage in this, and other project areas in the Stikine/Chatham Areas. The serious cumulative impacts to fish, wildlife, and water resources, as well as the significant restrictions to subsistence deer harvesting from this and other adjacent projects clearly qualify as "serious environmental damage." See also Section B8.222 (Offering Termination by Forest Service because Purchaser's operations would cause serious environmental damage).

66.30

The Forest Service may also terminate Ketchikan Pulp's contract under agency regulations "for serious or continued violation of [its] terms." 36 CFR 223.116(a)(1). According to provision B6.01 of the contract, KPC is required to conduct its operations "in compliance with Federal, State, and local statutes, standards, orders, permits, or other regulations." KPC has a long history of violating its air and water permits. KPC has seriously and continuously degraded the air and water in Ward Cove and the surrounding area which has resulted in significant toxic accumulations. In 1991, 1992, and 1993 KPC was either the largest or second largest toxic water polluter in the entire Pacific Northwest, including Washington, Oregon, Idaho, and Alaska. See EPA's Toxic Release Inventory Reports for 1991-1993 (attached as Exhibit 1). Most recently, Ketchikan Pulp pled guilty to criminal and civil violations of its air and water discharge permits governing operation of its pulp mill.<sup>5</sup>

Agency regulations permit the Forest Service to "debar" a purchaser for "conviction of

<sup>5</sup> See, *USA v. Ketchikan Pulp Company*, No. A95-025 CR (D. AK Mar. 6, 1995)(Criminal Plea Agreement); *USA v. Ketchikan Pulp Company*, No. A92-587-CV (JCS) (D. AK Mar. 29, 1995)(Consent Decree).

66.28

Ecosystem management can occur regardless of any timber volume range. With the size of the project area, timber harvest activities can be shifted away from areas of concern without affecting the volume range. Ecosystem management includes consideration of society's needs, e.g. jobs, lumber and paper.

66.29

The range of alternatives identified in the 1995 Draft EIS satisfied the stated purpose and need and was consistent with NEPA. The Revised DEIS includes a broader range of alternatives in response to public comments. The 1995 Draft EIS did not disclose that KPC operations would cause "serious environmental damage."

66.30

Refer to response to comment 3.3.



or civil judgment for ... a commission of a criminal offense in connection with ... performing a public contract ...," or "violation of the terms of a Government contract...." See 36 CFR 223.137(a)(1)(i) and (a)(2). Both agency regulations and provisions of the KPC contract further allow the Forest Service to "suspend" KPC's operations for "commission of ... a criminal offense in connection with ... performing a public contract ...," 36 CFR 223.142(a)(1)(i), or for breach of a "material" provision of the contract, Contract Provision B9.3. According to provision B6.01 of the contract, Ketchikan Pulp must conduct its operations "in compliance with Federal, State, and local statutes, standards, orders, permits, or other regulations." Unfortunately, KPC has never done so. See Exhibit 2.

"The existence of a viable but unexamined alternative renders an environmental impact statement inadequate." *Resources Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1307 (9th Cir. 1994)(quotations omitted). To serve NEPA's information purposes, an EIS must give a reasoned analysis of the evidence before the agency and make that evidence available to all concerned. The DEIS, however, fails to disclose Ketchikan Pulp's past and continued breach of the contract, the environmental consequences from these actions, or the management options thus provided the agency. This omission prevents the decision maker and public from making a reasoned and well-informed decision.

The Forest Service has refused to meaningfully consider any alternative which would not provide significant volume to KPC from this project. We find it remarkable that the Forest Service has spent all this time, energy and money studying alternatives that, in order to fulfill KPC's contract requirements, would violate the law. Yet, at the same time, the Forest Service has refused to consider lawful alternatives requested by local citizens to respond to legitimate needs other than fulfilling KPC's contract.

The decision by Congress to not cancel the KPC contract in the TTRA does not shield the Forest Service from considering alternatives that flow from the agency's authority to terminate, debar, or suspend KPC's contract operations in this DEIS. First, Section 101 of the TTRA allows the Forest Service to only offer timber under the contract subject to the requirements of other applicable laws, such as Section 810 of ANILCA and NFMA, and only "to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources." Even the faulty and incomplete analysis contained in this DEIS demonstrates these requirements can not be met for this project area. In addition, alternatives which include termination of the contract and debarment or suspension of contract operations, must be analyzed in the DEIS for this analysis to meaningfully inform the Congress and Administration as to whether fulfilling the contract volume requirements for KPC is consistent with meeting the agency's legal obligations to provide for balanced and sustainable multiple use on the Tongass. The 1992 Irland Group report, prepared for Congress pursuant to Section 301(e) of the Tongass Timber Reform Act, like the 1991 draft Revision, is outdated and fails to take into account new information now available to the agency.



Because reductions in habitat capability for deer resulting from this timber harvest would likely exacerbate any potential future restrictions of subsistence use of deer and there is a significant possibility of a significant restriction on subsistence uses of deer in the project area, this DEIS violates Section 810 of ANILCA and the Tongass Timber Reform Act. The purpose and need for this project has prevented the Forest Service from meaningfully considering other alternatives that minimize adverse impacts upon subsistence.

66.31

66.31 Refer to comment 66.17.

Finally, an opinion was recently issued by Texas Judge, Robert M. Parker (1993 WL 172660 (E.D. Tex) ) which completely countermands the "result-driven decision-making process." Both Judge Parker's decision and others (731 F. Supp 970, 989 (D. Colo. 1989)) found that situations where "the Forest Service had first established timber production goals and then formulated its "alternatives" in a manner guaranteeing that the Service planners would reach these goals....does not constitute a consideration of a broad range of alternatives as contemplated by 36 CFR Sec 219.12 (f)."

66.32

66.32 Refer to response to comment 55.9.

66.33 Refer to response to comment 12.2.

66.34 The new Forest Plan has been completed, a revised DEIS for the Port Houghton/Cape Fanshaw project has been published, and the KPC pulp mill has closed.

The Forest Service Should Wait Until It Revises The Tongass Land Management Plan (TLMP) Before It Authorizes Logging In Port Houghton.

66.33

Ironically, the comment deadline for the Port Houghton DEIS is the same date the Forest Service plans to release its draft TLMP Revision.

Our comments raise several significant issues which continue to plague timber sale project planning on the Tongass including this project's purpose and need, range of alternatives, fallowdown, highgrading, and unacceptable restrictions of subsistence users. Additionally, the Forest Service failed to take steps at the project level consistent with a scientifically credible and legally sufficient forest-wide wildlife habitat conservation plan - the *Review of Wildlife Management and Conservation Biology* (a peer review of a habitat conservation area strategy designed to safeguard the long-term health and viability of Tongass old-growth dependent wildlife) and the recommendations contained in the 1995 *Anadromous Fish Habitat Assessment*. Both reports found existing Forest Service protections for fish and wildlife to be inadequate. The failure of the Forest Service to disclose and adopt the best science available to protect viable fish and wildlife populations violates NFMA, TTRA, and ANILCA.

Addressing these issues is critical to the sustainable use of the Tongass, and the conservation of the wildlife and fish habitat that supports important commercial, recreational, and subsistence hunting and fishing within the project area. Postponing a meaningful discussion of these issues until completion of the long overdue Tongass Land Management Plan (TLMP) Revision is a serious mistake. The issues are so fundamental to managing the Tongass for the long-term benefit of all forest users that they must be addressed in the development and implementation of ongoing timber sales. This proposed sale is premature due to several factors. Consequently SEACC and NCC support the No-Action Alternative until a supplemental DEIS is released

66.34



following the completion of the TLMP.

Objections To Forest Service's Calculations Of KPC's Average Cutting Rate.

We have questions about the figures used to calculate the volume of timber the Forest Service estimates is necessary to provide KPC with a three-year supply of timber. The DEIS, at p. 1-3, estimates that the Forest Service must supply a volume of timber ranging from 556.2 to 577.5 MMBF to provide KPC with a three year timber supply. The DEIS also states that KPC's average cutting rate during the last five year period, ending February 28, 1994 was 185.4 MMBF per year.

According to information on KPC's cutting rates prepared by the Forest Service, and dated November, 1995,<sup>6</sup> the average cut by KPC during fiscal years 1990-94 (five years) was 162.4 MMBF; the average cut by KPC during fiscal years 1991-95 (five years) was 152.6 MMBF; the average cut from 1986-95 (ten years) was 165.6 mmbf; and the average cut from 1980 to 1995 (16 years) was 159 mmbf. What information was used to arrive at the 185.4 mmbf figure identified in the DEIS? Using the Forest Service's own figures for the most recent five years (152.6 mmbf) results in an estimated three year supply of about 458 mmbf, nearly 100 mmbf less than that supply identified in the DEIS. Please explain this discrepancy.

On page 1-3, the DEIS states predictions for how much timber is anticipated to be released to KPC in 1996-98. This information conflicts with the February 23, 1996 sworn statement by the Forest Service's regional director of timber management, Fred Walk, submitted in the AWRTA v. Morrison litigation. Mr. Walk estimates that "approximately 201 mmbf that is not currently enjoined is projected to be offered under the KPC contract in Fiscal 1996..." He goes on to estimate "approximately 178 mmbf that is not currently enjoined is projected to be offered under the KPC long-term contract in Fiscal Year 1997..." Please explain these discrepancies.

Additionally, the calculations used in the DEIS (at 1-3) to determine that a timber supply of only 82.5 mmbf would be available at the end of 1996 and succeeding year calculations are erroneous. If calculated correctly, the volume remaining at the end of each year will be 10 mmbf higher than shown in the DEIS: ie., 1996 - 92.5 mmbf; 1977 - 71.5 mmbf; and 1998 - 33.5 mmbf. Please explain how this discrepancy of 30 mmbf relates to the volume to be offered to KPC from the proposed sale area.

In meeting KPC's demand for timber, the Forest Service must also account for the fact that because APC is no longer operating the Sitka pulp mill, the great majority of pulp logs from all federal timber sales must now go to KPC for processing. Moreover, contract provision B0.62 states that the "Forest Service shall seek to specify sufficient Offerings ... that totals at least a three years of operations ...." (emphasis added). The

<sup>6</sup> These figures are attached as Exhibit 9



plain language of this provision means that the three year timber supply goal was not intended to force the Forest Service to ignore the needs of all other forest resource users.

Significant Issues Overlooked By Pre-Analysis Violates TTRA, NEPA, And  
NFMA.

66.35

Recreational and Commercial Boat Traffic:

As we previously stated, during the 1994 Petersburg scoping meeting, the team leader was careful to point out the adequacy of the extensive fieldwork conducted during sale layout activities. However, when Parametrix was asked what kind of surveys were conducted to assess commercial and recreational boaters in the project area, it became apparent that little or no effort was made to survey the numbers of boaters in the area, or to question them in a coordinated manner concerning their uses of the area. One charter boat operator present at the meeting commented that thousands of people travel to the Port Houghton/Cape Fanshaw yearly to view the whales and lush scenery of the area.

Although the study team was in the project area during the perfect time (May -August) to conduct a thorough and coordinated survey of some of the most avid users of the project area, this was not accomplished. For instance, a member of the study team could have been posted in Port Houghton for the express purpose of accessing recreational and tourism use of the area. Two years have passed, yet the only analysis the Forest Service conducted was a recreational questionnaire to determine use of the project area by some 69 individuals and groups on an existing FS mailing list. (DEIS 3-113). Why this questionnaire was not at least sent to all groups and individuals who are on the Port Houghton/Fanshaw Timber sale mailing list is unknown. Additionally, numerous participants at a recent Port Houghton/Fanshaw Timber Sale open house and subsistence hearing held in Petersburg (March 5, 1996) who use the area did not receive the questionnaire. We wonder how may other Port Houghton users were overlooked by this survey. Please conduct an adequate survey of all users of the Port Houghton Sale Area including field analysis.

Commercial Fisheries:

66.36

The ADF&G has authorized a commercial bait herring fishery in Port Houghton that lasts from October through February, or until the 250 ton quota is taken. Local fishermen also use the area to harvest salmon, shrimp, and crab throughout the year. Some of these fishermen have been involved in the Houghton fishery for periods extending a lifetime as well as their families for multi-generations.

The Forest Service and contractors charged with the environmental analysis for the proposed timber sale were asked by the public during scoping hearings in September, 1994 to conduct winter surveys. These requests were repeated in written public

66.35 Public scoping and public meetings were held to obtain information from users of the project area. If your organization has information on who travels to the project area and when, please provide this to the project team.

66.36 ADF&G was contacted to obtain information on commercial fisheries in the project area. No amount of field investigations could replicate the extent of information this agency has on commercial fisheries in the project area. Vessel operations in the waters of Southeast Alaska are governed by the International Rules for Navigation. Vessels engaged in fishing have the right-of-way over a tug boat towing a raft of logs.



comments for the proposed sale. Two winters have passed and no surveys have been conducted. During a recent Petersburg open house and subsistence hearing for the Houghton project, the public repeated those requests. The burden of proof to conduct surveys including identification of crab habitat in the project area should be on the Forest Service, not the public at large. The failure of the Forest Service to direct contractors to conduct additional surveys for this significant issue has created a large informational gap concerning the effect of the proposed activity on crab populations in the area and commercial fishermen who rely on the crab and other fisheries. We repeat our request for the Forest Service to conduct an analysis of the extent and locations of possible conflicts with commercial fishermen, including those encountered with the placement of log dumps on the south Houghton Shoreline.

Throughout the planning process for this sale crabbers have expressed concern that crab pots and buoys would be dragged out and lost by log tows resulting in severe economic consequences to local crabbers. For instance, King crab pots cost hundreds of dollars to replace, not to mention the lost revenues of fewer productive pots for the fishery. There was no acknowledgement in the DEIS of methods to avoid or mitigate this situation. However, according to the DEIS (at 2-29) "Commercial fisheries would be temporarily displaced while barges move through Port Houghton."

During the summer of 1994 commercial salmon seiners experienced one of the best seasons on record at the north end of Southeast Alaska - largely attributable to salmon stocks harvested in Port Houghton. The suggestion that commercial fishermen may be "temporarily displaced", perhaps while jockeying for the set of a lifetime, while timber sale boat traffic moves through the area is flippant to say the least. Under the best of circumstances, it is probable that conflicts will occur between commercial fishermen/crabbers in the area and log tow/barge operators. As previously requested, Parametrix should survey commercial use areas in Port Houghton (at all times of the year) and determine tow routes and contingency plans that have the least impact on commercial users.

Additionally, no coordinated effort was undertaken to survey the winter King salmon fishery in Port Houghton. Much information could have been gained concerning local trollers "drags" and winter anchorages and possible conflicts with log tows and other timber sale associated traffic. Trollers have been hard hit in recent years in the debate over Pacific Northwest King salmon. Every effort should be made to protect fishing interests in the area.

#### Local Winds / Anchorages/LTF's

Local fishermen voiced concerns during September 1994 scoping meeting that log rafts south of Sandborn Canal would be knocked out during the excessive winds experienced in Port Houghton especially during fall and winter months. One participant reported winter winds of up to 90 mph in Port Houghton. Contractors were urged to conduct surveys to determine wind velocities at proposed LTF sites, however

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66.37

Wind information was obtained from the Five Finger Buoy records at the request of a local mariner at the time of scoping. No other wind records are available in the area. The selection and evaluation of the LTF sites were conducted by Forest Service and contractor personnel with many years of Southeast Alaska experience in LTF siting.



- 66.38 Refer to Appendix I for the anchorages in the project area. Three additional anchorages occur on the west and southern portions of Cape Fanshaw which are not associated with recreation places. This is why the anchorages were not listed in the 1995 Draft EIS. The LTF sites are not in conflict with anchorages.
- 66.39 Additional information on the Hobart Bay LTF site is provided in sections 3.2 and 4.2 of the Revised DEIS.

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apparently no site-specific surveys were conducted. Although wind data, obtained from the 'Five Finger' weather buoy near Port Houghton was provided in relation to the design of silvicultural systems, (DEIS Appendix-8) there was no acknowledgement that this wind data, however insufficient, was incorporated to account for site-specific wind effects at the Port Houghton LTF sites. A common feature of Southeast Alaska weather forecasts during periods of excessive winds, often includes exceptions for "mainland bays and passes" where wind velocities for major bodies of water such as Stephen's Pass and Frederick Sound are frequently exceeded. The "will-o-waw" effect in these bays, Port Houghton being no exception, can create near life-threatening problems for even the most hardy of mariners who anchor at the few protected sites.

The proposed LTF sites correspond directly with anchorages used by local mariners. Fishermen at the scoping meeting commented that there were only a few anchorages in Port Houghton, most of which can only accommodate one or two boats. The presence of an LTF at those sites would displace them from customary anchorages. High winds experienced in Port Houghton/Stephens Pass and Frederick Sound make these anchorages especially valuable to mariners transiting the area.

Claims made in the DEIS (at p. 4-108) that "there would be no changes in anchorages, and impacts to marine fisheries resources from the construction of LTF sites on the south shoreline of Port Houghton are *insignificant considering the amount of the impact and the size of the salt water area.*" (McKenzie 1995b) show absolutely no understanding of the importance of such anchorages for local mariners in a howling gale and even in periods of calmer weather. Perhaps from the comfort of one's office chair these places seem "insignificant" but any experienced mariner will attest to the value of the sparse anchorages on the south Houghton shoreline. In fact, the Forest Service claims to have identified only 13 anchorages in the entire project area (DEIS 3-82), however, we counted only nine anchorages as identified in the DEIS (at p. 3-83). The location or adequacy of these FS determined anchorages is unknown since no map and little description was included.

We urge the Forest Service and Parametrix to complete additional field work and provide information and analysis omitted during the pre-analysis pertaining to these and other significant issues.

Construction of Log Transfer Facilities (LTF's) In Port Houghton Not Acceptable.

The preferred alternative for this sale includes the construction of two LTF's at "Little Lagoon" and "Rabbit Cove." Other alternatives propose construction of an additional LTF at "North Point." An existing LTF at Hobart Bay would be used in the preferred alternative as well as for alternatives C and D. Although "The Hobart Bay LTF is outside the study area and is operated by Goldbelt," (DEIS 4-18) a cumulative analysis should be conducted for additional impacts to the Hobart LTF site.

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66.40	Use of tow boats or barges to move logs from the project area to mills is a decision made by the timber operator. No significant impacts are projected to occur to the resources identified from development of an LTF site in Port Houghton. Refer to comment 2.2.
66.41	Since no impacts have been identified on a project level basis from development of the LTF sites, a cumulative effects analysis to include this project is not necessary.
66.42	Refer to Section 3.2 regarding existing conditions for Hobart Bay. Also refer to comment 66.40.
66.43	Refer to response to comment 62.1.1. The ATTf guidelines actually state, "is NORMALLY prohibited" (emphasis added). Mitigation measures would be applied.
66.44	Known herring spawning grounds are not within the area where bark dispersion or deposition would occur for the LTF sites. Refer to Section 4.2 for references. Bark dispersion and deposition is dependent on amount of timber, historical use, currents, and methods employed to transfer timber.

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**66.40** We support the use of a small barge to remove timber from the project area. The proposed construction of any LTF in Port Houghton due to potential impacts on crab, herring spawning grounds, conflicts with commercial fishermen and crabbers, and large marine mammals in the area such as Humpback whales, and the loss of important anchorages for mariners is a bad idea.

**66.41** The Forest Service has never completed a cumulative analysis on the effects to forestwide marine resources and anchorages in relation to how they are impacted with the addition of new LTF's proposed for new timber sales. This study is urgently needed.

#### Crab and LTF's

**66.42** Silt and debris from upland logging activities and LTF bark and debris is the source of a reportedly 18 inches thick brown slime, covering the bottom of Hobart Bay. Fishermen have complained of this thick brown gelatinous gel covering the web on their once productive crabs pots in Hobart Bay. Commercial crabbers no longer use Hobart Bay and have been forced to move on to other areas. Cumulative impacts resulting from the loss of productive crab grounds on lands adjacent to the project area should be analyzed and disclosed in the supplemental DEIS.

Repetition of a similar situation in Port Houghton can be avoided or at the very least minimized in this project area. In particular, any timber volume extracted from the main project area can be accomplished via a small barge, "minimizing impacts to intertidal waters". (DEIS 2-26). According to the DEIS "preference" should be given to onshore log storage and the placing of logs directly onto a barge from land." (DEIS Appendix K-3). [emphasis added]. We wonder why such "preference" was not given. In fact, the recent Campbell Timber Sale located in Bradfield Canal utilized a barge facility similar to those described in the DEIS and was reported to have been quite successful and profitable for the timber operators. Reports from British Columbia logging activities indicate log barges to be quite successful as well.

SEACC and NCC support the use of a small barge alternative rather than the construction of new LTF's in the project area.

#### Salmon and LTF's

**66.43** The DEIS claims that the proposed Little Lagoon LTF is within 300 feet of the mouth of a Class I stream on the eastern end of the LTF site. (DEIS Appendix K-4). According to Alaska LTF Siting Guidelines established by the Alaska Timber Task force such activity is "prohibited." Location of an LTF at the Little Lagoon site is unacceptable.

#### Herring and LTF's

**66.44** According to the DEIS (at 3-10) "documented winter Pacific herring spawn areas near



66.45	No significant displacement of fishing and recreational uses in Port Houghton has been identified.	
66.46	Impacts to the fishing community are described in Section 4.2.	
66.47	Refer to the response to comment 12.2.	

the Little Lagoon LTF site occur along the southern portion of Port Houghton at the proposed Little Lagoon LTF site and other locations very near and/or adjacent to the proposed Little Lagoon LTF." [emphasis added]. Documented winter herring occurs just east of the North Point LTF site and along the southern shore of North Arm. (DEIS 3-12). Although the DEIS claims elsewhere, that "no documented" herring spawn occurs "near" or "in proximity" to the proposed North Point and Rabbit Cove LTF, a map depicting herring spawn grounds indicates spawn relatively close. (DEIS Appendix K-4 to 6 and Map).

Regardless, it is likely that such spawning does indeed occur and it is not faulty to assume that herring may spawn at various undocumented locations along the south shore of Houghton, especially considering the large concentrations of herring normally occurring in Port Houghton. In fact, a large commercial herring gillnet fishery was relocated from Kah Shakes Cove to Cat Island, south of Ketchikan, a few years ago because herring shifted their traditional spawning grounds.

Finally, what was the basis the FS used to conclude that bark and debris will disperse no more than 180 feet from the Little Lagoon LTF site? How could this situation differ from that existing at the existing Tonka Mountain log dump on the Wrangell Narrows where "waves" of logging debris and bark radiating from the LTF site are reported? (DEIS 4-17). Please answer this.

Maritime Anchorages and LTFs

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As noted above, the location of possibly three LTF's at traditional maritime anchorages in Port Houghton is unacceptable. Not only will these LTF's displace charter operators from anchorages used during their operations, but fishing, recreational and other users of these anchorages will be displaced as well. This is unacceptable.

DEIS Fails To Include Adequate Analysis Of Impacts To Fishing Industry.

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As noted above, the Forest Service failed to adequately analyze and disclose impacts to the fishing industry in this DEIS. We urge the Forest Service to adequately consider, analyze, and disclose impacts to commercial fishermen in the area.

The DEIS Fails To Disclose Or Follow Recommended Measures To Adequately Conserve Fish Species In The Project Area.

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The DEIS (at 4-127) first reads that "jobs in the fishing industry are not expected to change due to implementing any of the action alternatives." Four sentences later the DEIS suggests that a "decline in fish populations from the proposed timber harvest" is possible, but dismisses it as insignificant since favorable ocean currents are expected to decline. Additionally, "All alternatives would provide the fish and wildlife habitat necessary to maintain existing known populations of native and non-native species throughout the project area" (at p. 4-131) and "the standards, guidelines, and



mitigative measures that would be implemented for the proposed harvest would maintain long-term habitat and species diversity."

The FS claims that impacts to fishing opportunities are minimized through location of most proposed units included in the preferred alternative for this sale one mile from the shoreline. It does not however, recognize the value of headwater areas that have been identified in the AFHA report as vital to fisheries habitat values.

The Forest Service's own report to Congress, The Anadromous Fish Habitat Assessment (AFHA), concluded that current protective measures are "not fully effective" to protect fish habitat from the impacts of logging, and recommends that additional protective measures be taken. According to the report:

"Current measures for anadromous fish habitat protection of the Tongass National Forest are less than fully effective, and additional protection is needed to make timber harvest more compatible with maintaining high-quality fish habitat and long-term conservation of anadromous fish stocks." (at p.11).

"Long-term application of current procedures could lead to, or in some cases continue, declines in habitat productivity and eventual loss of stocks or need for listing of salmon and steelhead as endangered or threatened." (at p.7).

"Procedures similar to those currently used to protect fish habitat on the Tongass National Forest (especially buffer strips along fish bearing streams) after being applied for nearly two decades to similar landscapes and conditions in coastal Washington and Oregon, failed to prevent declines in fish habitat capability, and resulted in increasing and now significant risk to the viability of salmon and steelhead stocks there." (at p. 7).

"Rapid movement towards extinction [of natural fish stocks] is possible if both marine and freshwater habitat productivity decline simultaneously." (at p. 2).

Without disclosing and discussing the AFHA findings, the Forest Service has not taken the required hard look at the environmental consequences from the proposed project on streams and watersheds in the project area. In addition, it significantly impedes informed public participation in the decision-making process.

As part of the AFHA analysis, the Forest Service reviewed the PACFISH management strategy for protecting anadromous fish habitat in the Pacific Northwest and found many similarities. This conclusion, and other analysis, led these experts to conclude that current protective measures implemented on the Tongass were not effective. This is not surprising because the strategies developed in PACFISH were intended for application in Alaska from the very beginning. (Forest Service public meeting, Petersburg AK, June 28, 1995). Thus, the recommendations made in the AFHA should be disclosed and applied to the alternatives considered, as it represents the



best scientific information presently available on how to protect anadromous fish habitat.

NFMA explicitly states that the Forest Service must "insure" that logging on the Tongass does not "seriously and adversely affect water conditions or fish habitat." U.S.C. Sec. 1604(g)(3)(E)(iii). AFHA has established that the minimum 100-foot riparian buffers on Class I streams, and those Class II streams flowing directly into Class I streams, do not adequately protect fish habitat on the Tongass. Accordingly, NFMA compels the full implementation of the specific recommendations made in AFHA to ensure that sufficient riparian habitat is maintained during and after logging operations.

In conjunction with NFMA, the Forest Service must also meet the requirements of the Alaska Coastal Management Plan (ACMP) which requires that fish and wildlife protection on federal lands be no less than that provided on state lands. Under the state Forest Practices Act (FPA), which is incorporated into the ACMP, there can be no degradation of important fish and wildlife habitat within 300 feet of a fish stream. Thus, the Forest Service has a legal obligation to manage riparian zones consistent with the ACMP and FPA, and the alternatives considered for this project should be developed accordingly.

"The Forest Service needs to take a quantum leap to protect fish habitat on the Tongass." (Dr. Fred Everest, Forest Service public meeting, Juneau AK, December 11, 1995) (See also attached transcript from KTOO broadcast, Exhibit 3). But the DEIS and Forest Service Regional Forester Phil Janik's recent memo to Forest Supervisors and Staff Directors regarding the implementation of AFHA on August 25, 1995 do not make that leap or adequately protect salmon over the long-term. Like AFHA, the memo divides steps into those to be taken in the revision of TLMP, and those to be taken under current direction. Given Senator Stevens' effort to block the revision of TLMP, this division becomes arbitrary and fails to do more now to protect the valuable fish habitat in the project area. In the supplemental DEIS, the Forest Service should disclose and analyze the extra habitat protection measures recommended in AFHA, and apply those measures in this project.

Moreover, the memo's half-hearted message -- "These items assigned to the Forest Supervisors and the Director of WFEW will only be accomplished to the extent they can be as part of other on-going work, without substantially disrupting or delaying project planning or implementation" -- leaves us concerned that the Forest Service isn't serious about taking necessary steps to protect the Tongass rich fish habitat. \*One watershed analysis per year as funding and staff permit" is hardly implementing the recommendations of AFHA or taking the quantum leap necessary to protect our world class salmon resource.

In the Port Houghton DEIS, the Forest Service did not complete a true watershed analysis as recommended by AFHA. The AFHA recommended immediately



66.48	Landslides are discussed in sections 4.5 and 4.9.3 of the EIS.
66.49	Refer to the response to comment 12.2.
66.50	Refer to Table 2-5 for miles of buffered and unbuffered streams.

implementing watershed analysis using the concepts presented in A Federal Agency Guide for Pilot Watershed Analysis (1994) before implementing logging or roading activities that could significantly influence fish habitat. See AFHA, Appendix C, at 39. Please provide a reasoned comparison of the procedures used in the watershed analyses for this DEIS and those recommended by AFHA in the supplemental DEIS, with a reasoned explanation for the choice made. This issue is particularly troublesome with this proposed project because of the level of development which has already occurred in several adjacent watersheds on Goldbelt lands, the disturbance proposed in this project, the area's natural landslide potential, and the fisheries values of streams in the project area, including East Negro, Haystack, Placer, Cat, North Arm and Walter Islands Creeks, and Sandborn Canal.

Experts who prepared the AFHA, "recommended that timber harvest and roading activities on potentially unstable slopes be reduced or eliminated." We recommend that all such units and roads be deleted from consideration for this project including numerous units located on "high hazard" soils in the project area.

We are also concerned about the effects of landslides on stream habitat. Many landslides occurred in the general area of the Port Houghton timber sale during the fall of 1994. Logging in Southeast Alaska influences the frequency and size of landslide events. The Forest Service must disclose credible scientific information to support its conclusion that proposed management activities will not increase the risk of landslides or violate state water quality standards. What are the potential impacts of landslides in the project area on fish habitat, and will logging on steep slopes and unstable soils increase the likelihood or magnitude of slides in the future? The issue needs to be fully discussed and responded to.

The Forest Service's reluctance to immediately apply the AFHA recommendations to ongoing timber sale projects reminds us of Yogi Berra's comment that, "this seems like déjà vu all over again." We remember in 1989 when the Forest Service chose not to follow the expert recommendations from the National Marine Fisheries Service when selecting between alternative riparian management strategies for the long-term protection of salmon and resident fish habitat. The Alaska Federal District Court subsequently found that decision to be arbitrary and capricious and enjoined logging within 100 feet of all Class I and II streams in the project area. The Forest Service should do the right thing now and implement the recommendations in the AFHA report without delay in this, and other ongoing timber sale projects.

Finally the Forest Service's failure to disclose and incorporate AFHA into the analysis makes their findings that there will be no significant possibility of a significant restriction to subsistence use of salmon in the project area arbitrary and capricious. (DEIS 4-80).

Please provide information concerning the numbers of miles of buffered and unbuffered stream class habitat resulting from implementation of the various

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66.51	Fish passage is ensured through application of BMPs, and use of specific logging mitigation measures as described in the unit and road design cards.
66.52	Regional direct and indirect employment derived from the fishing industry in Port Houghton is expected to remain unchanged from existing conditions for implementation of all alternatives.
66.53	Updated commercial fisheries data was obtained from ADF&G. The Forest Service acknowledges the value of commercial fishing to the economy of Southeast Alaska. No effects on commercial fishing are expected as a result of activities proposed in the Revised DEIS for the Port Houghton/Cape Fanshaw project area.
66.54	Refer to response to comment 66.53.
66.55	There is no known quantitative approach for estimating changes in commercial fisheries based on timber harvest in localized areas. The basis for concluding that the fishing industry would not be affected by the project is that, through application of all applicable standards and guidelines, fish habitat would not be affected by the proposed harvest.

66.51	<p>alternatives.</p> <p>Please provide specific information concerning measures taken to insure fish passage on each Class I and II stream in the project area.</p> <p><u>Economic Analysis for Fishing Industry</u></p> <p>As we previously requested, an economic analysis should be included in the DEIS which projects over time the risks/cost/benefits of the proposed action to all affected users of the project area. For instance, regional direct and indirect employment derived from the fishing industry in Port Houghton (including sport charter operators) should be calculated and displayed in the EIS for all alternatives including the no-action. Environmental consequences should be displayed for these groups similar to that displayed for the timber industry similar in Table 4-39.</p> <p>Although a crude economic analysis was included in the DEIS (beginning at 3-104) there were many parameters omitted from the study and the figures presented were not tied to any meaningful discussion of economic contributions of the Port Houghton fisheries. For instance, Table 3-27 which displays the "Average Crew Size for Each Gear Type Used in Southeast Alaska" only includes the seine, troll and gillnet fisheries. Omitted are the halibut, crab, shrimp, and other fisheries. Additionally several local processors were omitted from Table 3-26 which displays "Seafood Processing Employment in Southeast Alaska." ie: Coastal Cold Storage, Taku and Northern Lights Smokeries, etc.</p> <p>Please keep in mind numerous fishermen not participating in Limited Entry salmon fisheries use the project area. Please update your employment figures from 1988 to include those participating in fisheries other than listed in your tables. Likewise, we find it hard to believe that only \$118,985 is the wholesale price paid for salmon, other finfish, and shellfish in 1988 in the Juneau, Yakutat, Petersburg, and Wrangell areas as depicted in Table 3-31! Please correct Table 3-31 to reflect accurate figures and meaningfully relate this table to the analysis. We suspect that your figures may be off a few decimal points. Also, please include Kake in the analysis.</p> <p>Commercial harvest values for shrimp and crab in and near the project area should likewise be calculated and displayed in the DEIS.</p> <p>Please include a detailed economic analysis for fisheries related employment in the Affected Environment section of the supplemental DEIS, similar to the analysis for timber jobs in the DEIS (at p. 4 -123 to 126). The one paragraph discussion of economic environmental consequences to the fishing industry included in the DEIS (at p. 4-127) is totally inadequate, and indeed contradictory. The FS cursory acknowledgement of economic consequences related to the proposed action reflect a casual disregard to those who depend on the Houghton fishery, some for a lifetime. Due to the totally inadequate analysis considered in this DEIS there is no basis for the</p>
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claim that "Jobs in the fishing industry are not expected to change due to implementing any of the project alternatives." (DEIS 4-127).

An accurate economic analysis of existing Port Houghton fisheries will demonstrate that Port Houghton currently provides a much greater local economic value than what can possibly be created by logging 6,037 acres of old growth adjacent to prime fisheries habitat and shipping the jobs to Ketchikan.

**66.56** Failure Of The Forest Service To Reliably Demonstrate Implementation Of BMP's Will Not Cause Impairment To Water Quality Violates NFMA, The Clean Water Act, And NEPA.

The Forest Service should disclose the monitoring information it has collected to show that its BMPs are implemented and effective in eliminating damage to water quality and fish spawning and rearing habitat. SEACC has submitted several reports to the Forest Service since 1991, demonstrating that the agency has not adequately monitored implementation of BMPs and their impacts on fish and water quality nationwide. SEACC specifically requested in its September 29, 1994 comments, that the DEIS "provide SEACC and the public with credible monitoring information to support the assumption that the agency's [BMPs] will protect fish habitat, water quality, and subsistence opportunities." The failure to present this information as requested in the DEIS violates the CEQ regulations, 40 C.F.R. 1505.3 (d). This regulation, which is binding on the Forest Service, requires the agency to "Upon request, make available to the public the results of relevant monitoring."

Specific monitoring information is much more helpful than general information showing that BMPs have been shown to protect water quality in Southeast Alaska as emphasized in the DEIS. Indeed, the EPA addressed this very issue when it stated: "[W]e agree that implementation of [BMPs] and buffer strip requirements will reduce sediment effects. However, the responsibility is on the Forest Service to demonstrate in advance that timber harvest and road construction will not cause beneficial use impairment and cause standard exceedances." (emphasis added). NEPA prohibits the use of conclusory statements unsupported by data, authorities, or explanatory information when deciding to proceed with a proposed action. The DEIS fails to present credible information demonstrating that BMPs are implemented, and effective in protecting riparian resources.

NEPA requires the Forest Service to identify appropriate mitigation measures when presenting alternatives for consideration in the DEIS. 40 C.F.R. Sec. 1502.11 (f). In particular, mitigation plans to limit habitat fragmentation, degradation of coastal marine resources, and restrictions on subsistence use must be developed and disclosed. Monitoring information confirming the effectiveness of these mitigation measures must be fully disclosed for public review.

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Results of the EIS analysis indicate that timber harvest and commercial fishing in the project area would occur simultaneously. There is no attempt to exclude either resource for the sole benefit of a single resource.

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For detailed forest-wide monitoring, refer to the Tongass National Forest Annual Monitoring and Evaluation reports. It is not the purpose or objective of this EIS to reprint this information. Site-specific monitoring and mitigation measures are described in appendices E and L, respectively.



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66.58	<p>With the application of BMPs, water quality standards are not expected to be exceeded. Refer to the Monitoring Plan in Appendix E for elements specifically included to address fish habitat and water quality concerns.</p> <p>The mass failure risk at the top of each unit design card was evaluated by the silviculturist who field surveyed the unit. The soil hazard classification review was conducted by a certified soils scientist. The soil hazard rating takes precedence over any mass fall evaluation by the silviculturist. The M rating for Unit 29119 is an error and has been corrected.</p>		
66.59			
<p><u>Standard Water Quality Exceedances To Anadromous Fish Habitat Are Unlawful.</u></p> <p>Of particular concern is erosion of fine grained sediments to streams in the area and the potential severe consequences to local anadromous fish stocks . The DEIS estimates increases in sediment resulting from roads for each alternative. For example, according to the DEIS, for Watershed 331- the highly productive, anadromous East Negro Creek watershed:</p> <p>"Where increases in sediment yield exceed 100 percent, the change could be large enough to indicate that water quality standards may be exceeded. No increases of greater than 100 percent were estimated to result from road erosion in project area watersheds, with one exception (<i>107 percent increase in watershed 331 under Alternative B</i>)."  <i>(DEIS 4-57). [emphasis added].</i></p> <p>Proposed road construction and other development activities in this watershed that result in expected violations of water quality standards are strictly prohibited.</p> <p>Additionally, according to the DEIS, the headwaters of the East Fork Negro Creek are high-gradient contained-channel types that "show evidence of substantial mass wasting, bank cutting, pool filling and deposition," (DEIS 3-51) and "natural sedimentation may limit resident fish productivity in the upper reaches of the watershed." (DEIS 3-51). Additional sedimentation from logging activities may push this watershed over the limit in its ability to provide adequate habitat for spawning, rearing, and resident fish.</p> <p>If a reanalysis is undertaken that indicates water quality will not be exceeded, please provide verifiable evidence that the new statistics validate the reanalysis.</p> <p>According to the DEIS (at 4-59), the preferred alternative has "relatively little" logging and road construction proposed for Class III soils (high hazard) in watershed 311 and 393 and "no logging or road building proposed for Class IV soils" (very high risk hazard class). (DEIS 4-59).</p> <p>The "Mass Fall Risk" categories included on the unit description cards are rated for three levels of risk (Low, Medium, and High), yet the standard FS soil class categories established regionwide include four categories (Low, Medium, High, Very High), therefore it is impossible to determine what acres on what class of soils may be proposed for harvesting. The discussion contained in the DEIS (at p. A-12) concerning soil hazard classes, as noted on the unit cards, provides no clear delineation concerning the unit card soil class, and only describes the ratings used during field recon etc. to be "subjective". Also, the soil hazard classes as noted on the unit cards are conflicting. For instance, for Unit 29119 (168), the narrative describes soils as Hazard Class III and the "Mass Fall Risk" is noted as "Medium". However for Units 29120 (171) and 29121 (172) the narrative describes the soils as "Hazard Class</p>			
66.59			
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66.60 Refer to the unit summary cards for revisions.

66.61 Additional field work was conducted to determine the extent and location of slides that occurred during the 1994 storm. Areas of known slides have been incorporated into the Revised DEIS, and road adjustments were made to avoid these areas.

III" but the Mass fall risk is listed as "high." Please explain this discrepancy. If soil classifications are altered on the unit cards, please explain how the changes were verified.

66.60 Because several units appear to occur on high hazard soils directly above sensitive anadromous streams, we request that these units be omitted from the unit pool. (See attached Exhibit 3A). For instance, inspection of individual unit cards for the preferred alternative (on the table at the top of each unit card), depict several units in the highly sensitive East Negro Creek watershed which propose logging activities on high hazard soils. Units 331047 (86), 331045 (62), 331046 (82), and 331049 (112) are all indicated to occur on high hazard soils. Other proposed units in the preferred alternative occur on high hazard soils, as well as units in other action alternatives. The Sandborn Canal, occurs on high hazard soils. Although the unit card depicts an unbuffered Class III stream flowing from the unit directly into a class I stream the DEIS proposes logging the entire unit rather than risk the possibility of windthrow occurring along a protective buffer. Likewise the table at the top of unit card 341104 (143) indicates a "low" mass fall risk, however the narrative for the unit claims slopes range up to 90% (yet the DEIS explains that most low soil hazard land occurs on slopes less than 35 percent).

Although "four small creeks" bisect the unit their Class is unknown and they are not depicted on the unit map. It appears they must flow directly into a Class II tributary to Sandborn Canal. This and similar units must be deleted from consideration for logging altogether. Whether this and other similar units are included in the preferred alternative or whether they are cable or helicopter yarded is beside the point. This as well as other similar units should be eliminated from the unit pool and timber base. Their inclusion inflates the amount of timber that can be sustainable logged from the area, and severs the tie to TLMP.

66.61 Although the DEIS included a cursory discussion of the effects of mass wasting in the project area (at p. 4-58) it did not include a cumulative analysis of those effects nor identify areas that had experienced slope failures. As pointed out in our scoping comments, tributaries at the head of Sandborn experienced major landslides during 1994 including a huge one between the two bluffs on the NE side of Sandborn and others farther up the Sandborn. According to the DEIS (at 3-60), "Evidence of mass wasting was observed throughout the project area." Individual watershed descriptions included only brief accounts of slope failures, but dismissed them as insignificant; for example, for the Sandborn watershed: "Evidence of erosion and slope failure is common." (DEIS 3-55). Why was there no attempt to inventory those areas and include their impacts in a cumulative analysis? Statements such as "effects are limited to the immediate vicinity of the path itself," (DEIS 3-61) demonstrate no understanding of the devastating effects landslides can have on water quality and anadromous fish habitat.



**66.62** The unit narrative included for Unit Card 311144 (6) indicates a stream bordering the west unit boundary which is a Class II stream however the unit map indicates it is Class III. Please field check this unit to determine which Class stream this is and verify it in the supplemental DEIS.

**66.63** The unit card map for Unit #381133 (8) depicts a road within and paralleling a Class II stream buffer and the narrative indicates guylines are required in the stream buffers. These activities are not acceptable within TTRA mandated stream buffers.

**66.64** As previously requested, please provide verifiable information that a qualified fisheries biologist field checked every stream affected by the proposed action following the identification and layout of streams buffer by unqualified personnel.

**66.65** As we suggested, please disclose and consider Chief Jack Ward Thomas's directive's on "ground-truthing" following his review of the Central Prince of Wales Island Timber Sale appeal. We do not believe this issue "outside the scope" of the Houghton timber sale.

For instance, Mr. Thomas directed employees to improve ground reconnaissance of individual cutting units. With this in mind, we request that each IDT member that visited a unit on the ground be recorded on the original, unaltered unit card. We are particularly concerned that thorough field reconnaissance be done.

**Proposed Logging On Steep Slopes And Unstable Soils Violates Agency Direction.**

We are very concerned about logging and road construction activities in the area due to the presence of high hazard, unstable soils on oversteepened slopes. Despite extra efforts (i.e., skyline logging) taken by Goldbelt and their contractors to avoid triggering slides on Hobart lands they occurred regardless. A former ADF&G habitat biologist present at the Houghton/Fanshaw scoping meeting commented that landslides had even been triggered on Goldbelt helicopter yarded units.

According to the 1984 TLMP Evaluation Report (at A-5):

*"The retained acres are not the only CFL acres which are excluded from the acreage basis for timber harvest calculations. Tongass-wide, a total of 66% of the CFL has not been scheduled for harvest in TLMP...This unscheduled CFL includes the above retained acres...[and] CFL in LUD's III and IV on slopes greater than 75%." (emphasis added).*

The Port Houghton/Cape Fanshaw DEIS should include a clear statement revealing how much and where proposed logging will occur on slopes greater than 75%. Whether or not helicopter logging will reduce the risk of slides from such units is beside the point; the Forest Service must comply with existing forest planning direction

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**66.62** The stream is a Class III.

**66.63** The road is just outside and parallel to the stream buffer. It is difficult to show this on the map. Guylines in stream buffers are allowed if no feasible alternative occurs.

**66.64** Fisheries buffers were laid out by qualified fish biologists.

**66.65** Resource specialists responsible for their respective resource in each unit signed the field unit and road cards. Additional field unit review will occur during timber layout.

**66.66** Refer to Section 4.9.3 for roads and units on steep slopes. A large map depicting slopes above 60 and 70 percent is available in the Planning Record.



66.67	There is no road construction planned in areas where soil failures are a "near certainty." At the time of final layout and design of the road, any necessary adjustments to protect the soils resource will occur.
66.68	As stated in the EIS, Hazard Class IV soils have been avoided for harvest and road construction. Soil concerns for each unit are described under Resource Constraints and Opportunities in the unit summary card. Also provided in the card is the silviculturist's review of mass fail risk for the unit. Also, refer to response to comment 66.66.

by deleting such acres within the timber base for this proposed project. All areas with slopes over 75% should be deleted from the timber base. For instance, acres contained in cutting units that include excessive slope pitches must be deleted, ie., Unit 341104 (143) and many others. Whether or not such deletions make for "logical settings" is again beside the point. The Forest Service must comply with it's own direction to avoid logging on oversteepened slopes.

Most troubling is the proposed location of Road 8496. The road card (Appendix B) describes a segment of this road:

"an area between Units 29119 (168) and 29120 (171) which has slopes in the 70-80% range. Orientation of the bedding plane showed indications of mantle creep and large pieces moving downslope in stream channels. The cut bank may be difficult to hold because it will be high and there appears to be signs of colluvial movement. The distance between the benches at 29119 and 29120 is several hundred feet which , may set this up for failure...*There is no indication that the soil material on the downslope would be able to support the load.*" [emphasis added].

Additionally, the road card and associated unit cards go on to describe important fish habitat fish habitat would be affected. Similar concerns for soil stability are voiced in the road cards for Roads #8490, #8494, and #8495, etc.. The proposed construction of roads where soil failures are a near certainty violate NFMA, Clean Water Act, ACMP TTRA and agency direction. There is absolutely no basis to the claim that fisheries habitat would be protected in any of the proposed alternatives. Please relocate these roads to areas where there are no concerns for soil stability or eliminate them from consideration altogether.

As we previously asked, the slope and soil stability classification for each unit should be listed in the DEIS. This information is essential for the public to assess the effect of proposed alternatives on soil stability, water quality and regeneration. The importance of this information is underscored by widespread flooding and landslides during the fall of 1993 which triggered Governor Hickel's disaster area declaration for Prince of Wales Island. In addition, the costs associated with repairing damaged roads and culverts and stabilizing slopes need to be disclosed and incorporated into any cost/benefit analysis prepared for this project. Please do not dismiss this as outside the scope of the analysis.

Please include a map of existing high hazard soil areas (Class III and IV) (not "low, medium, or high") in the supplemental DEIS, and a map depicting road and unit layout in relation to these areas, as previously requested during scoping, for each unit.



66.69 Refer to response to comment 3.3.

66.70 The Forest Plan identifies portions of the Tongass National Forest for specific uses. Timber production has been identified in specific areas of the Tongass (such as portions of the project area), recognizing that primitive and semi-primitive recreational experiences may not occur in these roaded and timbered areas. Primitive, wilderness, and semi-primitive recreational experiences have been identified to occur in other areas of the forest. Please be aware that the resources provided by the Tongass National Forest must be shared by all users, and that one type of resource (such as either recreation or timber) cannot dominate the entire forest. Refer to the Forest Plan for a more in-depth discussion of how resource use is divided among the various areas within the forest.

DEIS Public Comments

D-199

Port Houghton/Cape Fanshaw EIS

Any Timber Offered In The Project Area Should Be Offered To Local  
Independent Operators - Not Ketchikan Pulp Corporation.

As noted above the lion's share of timber extracted from the sale area is scheduled to satisfy the 50-year contract held by Ketchikan Pulp Corporation, a convicted felon on probation for dumping toxic sludge into Ward Cove. In recent years KPC has gained notoriety as one of the worst air and water polluters in the Pacific Northwest, and as stated above this issue should be considered as one of the significant environmental impacts of this proposed sale. Additionally, most of the jobs and other short-term benefits of this unsustainable level of logging will bypass Petersburg, and go directly to Ketchikan. In the meantime area residents including those from Juneau, Petersburg, Kupreanof, and Kake will be trading off their fishing, tourism, recreation, wildlife, and subsistence resources to satisfy the rapacious appetite of an out-of-control pulp mill.

The Houghton sale area is outside KPC's operating area. In recent years, the unsustainable logging practices of KPC have forced them to extend these practices to areas formerly off-limits to the company. It is neither good government policy nor legal to treat the short-term economic benefits to KPC from this proposed timber sale as more important than the long-term stability of the local communities adjacent to the project area.

Impacts From This Proposal Jeopardize The Ability Of Local Communities  
And Residents To Capitalize On The Growth In Tourism And Recreation  
Business Opportunities.

The DEIS (at p. 4-127) admits there may be negative impacts on recreation and tourism growth; "Implementation of any of the action alternatives may result in displacement of recreational users outside the project area." The Forest Service further admits that the Port Houghton project will likely lead to the displacement of recreationists seeking specific primitive or semi-primitive recreational opportunities that no longer will be available in areas of active timber harvest or road construction, such as the Port Houghton project area; "As more areas throughout Southeast Alaska are harvested for timber, recreationists seeking primitive or semiprimitive recreation opportunities would find it increasingly difficult to find places to recreate." (DEIS 4-128).

These statements reflect the Forest Service's "timber-first, timber at all costs" bias regionwide. Their own numbers project substantial growth of tourism and recreation related industries in Southeast Alaska yet they insist on logging at levels that would jeopardize local communities' and residents' ability to capitalize on that growth. Tourism is the fastest growing sector of Southeast Alaska's economy and is already the third biggest employer in the region behind commercial fishing and government. Proposed timber sales like Port Houghton/Fanshaw, with its demand for huge, unsustainable amounts of logging and extensive road building, essentially mortgage the area's future in order to fulfill the needs of KPC's long term timber contract.



- 66.71 Refer to response to comment 64.4.
- 66.72 Refer to the Forest Plan for areas on the Tongass National Forest identified for specific types of recreation.

According to Pamela Gunther (Petersburg Scoping meeting, Fall 1994), Parametrix did not conduct a thorough or coordinated survey of recreational or tourism users in the project area during the pre-scoping field layout of the timber sale. Although field personnel were in the project area during the perfect time to conduct an excellent survey, Ms. Gunther admitted observations of recreational or commercial use of the area was incidental to other assigned tasks and may or may not have been appropriately noted.

Apparently, due to vocal criticism at the scoping hearings of the failure to conduct adequate surveys while in the field, Parametrix conducted their own survey during the fall of 1994 "to determine use by tourists". A questionnaire was sent to 69 individuals and groups on a preexisting Forest service mailing list for outfitter-guides, not those groups and individuals on the Port Houghton mailing list, or others. The results of the faulty Parametrix "survey" (DEIS 3-113) concluded that most use of the area was by boat and that from one to 101 passengers per vessel use the Houghton Area. There was no mention made of how many times such vessels travel to the area per year - only the number of passengers per vessel. The Forest Service concluded that the project area is "not significant economically because use is limited in comparison to other higher use areas." (DEIS 3-114). The basis for this conclusion is arbitrary and capricious since no adequate survey was conducted to assess the tourism and recreational boat users in the area.

Likewise, apparently anecdotal reports of recreation and tourism use of the area were used to conclude existing recreation and tourism in Port Houghton is "insignificant". i.e., "One local charter float plane company in Petersburg estimates that they make about 15 flights per year into the Port Houghton area carrying 2-3 people per trip for hunting activities." (DEIS 3-85). Did Parametrix conduct a coordinated survey of all potential charter plane companies in Petersburg, Juneau, Sitka, Ketchikan, etc. who transport visitors to the area? This situation again points to the need for scoping in advance of fieldwork, for had such significant issues been identified prior to field work Parametrix could have planned for adequate surveys, while stationed at Port Houghton.

The DEIS goes on to claim, "People who now visit the area primarily because of its unmodified character may chose to recreate at subareas within the project area that are not affected by the harvest activity, or they may chose to go to other parts of the National Forest that still exhibit unmodified landscape character." (DEIS 4-102). The suggestion that visitors to the area can go to "subareas" within the project area and derive the same experience as they did prior to logging and road building is ludicrous. The current opportunity to experience all the special features of this largely unaltered ecosystem is plentiful. Fragmentation and degradation of those features would indeed cause many to relocate. The DEIS even goes so far to admit that, "Recreationists seeking areas with natural settings and a high degree of solitude would be displaced to other areas in the National Forest, or they would stop recreating on the National Forest." (DEIS 4-109).[emphasis added]. Please identify other areas on the National



66.73

The information on anchorages is a repetition from page 19 of this letter. Refer to response to comment 66.38.

66.74

Refer to changes in the Revised DEIS for Section 3.7 for a discussion on outfitters and guides.

Forest that possess all the outstanding characteristics of Port Houghton including the presence of a healthy and diverse variety of large land and marine mammals, a salt chuck bounded by wide flat estuaries, incredible sport, commercial, and subsistence fishing, unaltered scenic vistas beyond compare, and the opportunity for a high degree of solitude - all reasonably accessible to local communities.

As the name suggests, areas in Port Houghton serves as important anchorages for mariners fishing in and transiting the area. Claims made in the DEIS (at p. 4-108) that "there would be no changes in anchorages, and impacts to marine fisheries resources from the construction of LTF sites on the south shoreline of Port Houghton are insignificant considering the amount of the impact and the size of the salt water area." (McKenzie 1995b) show absolutely no understanding of the importance of such anchorages for local mariners. This includes charter operators who seek isolated anchorages with no presence of human activity. In fact, the Forest Service claims to have identified only 13 anchorages in the entire project area. (DEIS 3-82). The location or adequacy of these FS determined anchorages is unknown since no map was included. A brief description of the existing anchorages in the project area was included on Table 3-22 however only 9 - not 13 anchorages were briefly described in the table. There was no reference to correlate the anchorages included in the table or recreation place #'s to any other reference in the analysis, however after about 30 minutes of searching we found an ROS map in Appendix I. Please appropriately reference all your tables and figures in the DEIS and meaningfully relate them to the analysis!

According to a study prepared in 1995, "Status of Anchorage Suitability for Eco-tourism Charter Boat Operators and Guides in Southeast Alaska", <sup>7</sup> it was concluded that "the number of anchorages in a natural condition in the study area has been severely reduced, especially in lands available for development either by Forest Service (LUD III and IV) or by private owners (None category)." Although the "study area" was outside the Port Houghton Area, its' conclusions point to a need to protect traditional anchorages for maritime use in Southeast Alaska. (Exhibit 4). The findings of this excellent study should be incorporated and disclosed in the Supplemental DEIS. A similar analysis of anchorage sites in the study area and adjacent areas should be conducted to assess the cumulative resulting from the impairment of anchorages in Port Houghton.

As per the 1994 Chatham Management Area Outfitter and Guide actual use report, dated March 17, 1995 only three guides have been permitted to use the project area. How this "fact" relates to anything is a mystery since the permit "does not include any of the permits that have been granted by the Stikine and Ketchikan Areas." (DEIS 3-84). However, the Forest Service claims "with these numbers, some conclusions could be drawn as far as outfitter and guide use of the Port Houghton Area." We wonder just

<sup>7</sup> See "Status of Anchorage Suitability for Use By Eco-tourism Charter Boat Operators and Guides in Southeast Alaska", for Alaska Institute for Sustainable Recreation and Tourism, by Ellis and Calvin, October 1995.



Responses to Narrows Conservation Coalition and Southeast Alaska Conservation Council

66.75	No timber harvest is proposed in the Revised DEIS around Sandborn Canal.
66.76	Roads constructed in the North Shore area are for timber harvest only and will be closed following harvest. There is no planned recreational access for the North Shore area.
66.77	The proposed timber harvest meets the VQOs adopted in the Forest Plan.
66.78	The new Forest Plan adopted specific VQOs for different areas within the Port Houghton/Cape Fanshaw project area. Actions proposed under all of the alternatives analyzed in the Revised DEIS meet those VQOs.
66.79	The viewsheds selected were based on views that would be apparent from the small boat user. There are no inland views selected on roads. The roads planned in the project area are intended for timber harvest. Any recreational use would be incidental. Planning additional roads to take advantage of pristine viewsheds would be inconsistent with public concerns about unroaded areas and potential effects of roads.

66.75	<p>what conclusions could be drawn from this totally incomplete assessment!</p> <p>Please eliminate any impacts to Recreation Place # 59 surrounding Sandborn Canal. This favorite recreation place is a large forested area with numerous creeks surrounding Sandborn Canal, and is easily accessible. Impacts related to logging activities in the area are unacceptable.</p>
66.76	<p>Additionally, what measures will the Forest Service take to insure public right-of-way access to "recreational roads" built beyond, but crossing Goldbelt lands on the North Shore of Port Houghton?</p> <p><u>The Forest Service Failed To Adequately Disclose Or Justify The Wholesale Degradation Of Visual Quality Resulting From Logging Activities Proposed By The DEIS And Violates Agency Direction.</u></p>
66.77	<p>The public has no way of knowing how many acres of the existing visual classes (Preservation through Maximum Modification) will be affected by each alternative. Please provide a table in the DEIS that clearly depicts the number of acres affected for each visual class and the percentage increase. The dramatic degradation of the area's scenic qualities are masked by the inaccurate DEIS presentation. The Forest Service offers no justification for this assault on visual quality.</p>
66.78	<p>The unilaterally dictated set of Visual Quality Objectives (VQO) contained in the DEIS violates TLMF's instruction to "define alternative VQOs as part of the formulation of alternatives" in step C of Area Analysis. See TLMF Amendment at 203. The level of visual degradation proposed in this DEIS further contradicts the FSM instruction that "the visual resources will be treated as an essential part of, and receive equal treatment with, the other resources of the land."</p>
66.79	<p>The Forest Service chose ten viewsheds for assessing impacts to visual quality. No explanation is given for its choice of managed viewsheds and viewing points. All of the ten viewsheds are water views. None are along any of the extensive road system proposed for this sale--the same roads the Forest Service claims offer recreational opportunities on the Tongass. For instance, "As harvest activities increase in previously unmodified areas, new opportunities for recreation activities associated with roads would expand" and "Roads could be used by hikers and bikers to access inland areas." (DEIS 4-104).</p> <p>Please do not fail to establish sensitive viewpoints along the 74.7 miles of specified road proposed for this sale as we requested in our scoping comments. When selecting these sensitive inland viewpoints, attention should be given to natural topographic features that are unique in the project area. For instance, waterfalls, large stands of high volume old growth (yes, they can serve functions other than timber production!), pristine river valleys, etc. could be selected as sensitive viewpoints. We request that "viewsheds" as seen from these points be fully protected and that no cutting units be</p>



visible in these viewsheds. Rounded and scalloped clearcut edges, and partial timber removal are not acceptable mitigation in sensitive viewsheds. What we are asking is that the Forest Service provide the public with a comprehensive analysis that truly considers all resources.

66.80

There is absolutely no basis for the claim that Alternative B "minimized" shoreline disturbance that could occur to visual conditions by avoiding most timber harvest within one mile of shoreline areas. (DEIS 2-7). Contrary to agency direction, Visual Quality Objectives (VQOs) prescribed by the Forest Service will be exceeded in Alternative B:

*"...areas of concern include Alternative B; Port Houghton and Inner Port Houghton Viewsheds (DEIS 4-110); visual quality objectives of Partial Retention will not be met for Port Houghton (DEIS 4-111 and 119); visual change in the Inner Port Houghton Viewshed "would be highly apparent because steep topography creates a 'billboard' at the entrance to the Sandborn Canal," "...substantial visual disturbance...," "...changes in the landscape are strong and appear to be major disturbances..." (DEIS 4-119).*

Please delete the following roads and units to avoid the proposed Alternative B unacceptable impacts to visual quality:

Inner Port Houghton Viewshed - delete all units that result in exceeding VQO's, ie., Units 341118 (30) (the billboard) , 398119 (24), 398120 (26), 398121 (28), 398123 (25a) and the roads serving the units ie., Route 84934 and Route 84935, etc...

Sandborn Canal Viewshed -Delete Road 8490, Delete Unit 341107 (139) and Unit 341105 (129).

Port Houghton Viewshed - Delete Units 321013 (72) and reroute road 8498.

Proposed Degradation Of Eligible Wild and Scenic Rivers Are Unlawful.

SEACC and NCC and the Tongass Rivers Coalition have completed the "Citizen's Proposal - Tongass Rivers, the Lifeblood of the Rainforest" which will be included in the TLMP Revision planning record for Wild and Scenic Rivers. (Exhibit 5). As a result of our analysis, and as we pointed out in scoping comments, we have concluded that the Salt Chuck and Sandborn Creek and Canal, and the Farragut River do indeed meet the guidelines for eligibility as a wild and scenic river for their entire length (as "Wild") although the Forest Service, in a closed analysis, found them ineligible. These eligibility findings and the lack of public involvement stimulated the creation of this Citizen's Proposal. It should be noted that wild and scenic river designations do not interfere with hunting, fishing, and recreation or with the State's rights to manage their fisheries.

66.82

66.80 The 1995 DEIS used inventoried VQOs for the effects analysis as a means of comparing alternatives. There were no prescribed VQOs until the new Forest Plan was released in 1997.

66.81 All alternatives in the Revised DEIS meet the adopted VQOs.

66.82 The Farragut River is the only river near or within the project area that is proposed for Wild and Scenic River listing. To be protected under the anti-degradation clause of the Act, the river must be found eligible and suitable through the Forest Planning process. The Farragut River was found eligible as a Wild River for 29 miles and eligible as Scenic River for 1 mile.



Because the Salt Chuck, Sandborn Creek and Canal, and the Farragut River are worthy additions to the wild and scenic rivers system, we believe they should receive full interim protection as other eligible Tongass rivers. As previously pointed out, the key to interim management is maintenance of the status-quo until a final decision has been made concerning the river's future. Because the final decision on the river's eligibility is pending, Forest Service administrative direction also requires that potential wild and scenic rivers be protected to ensure that the river's values are not degraded before final decision is reached on its inclusion in the national rivers system. (F.S. Planning Handbook, Chapter 8, S 8.12, 8.14). The Wild and Scenic Rivers Act also contains an anti-degradation clause (See Sec. 10 (a) of the Act).

Although the DEIS (at p. 1-14) claims "alternatives being considered for this EIS would allow future designation of Wild and Scenic for either the Houghton or Sandborn River," the conclusions of the recreational analysis contained in the DEIS (at 4-109) claim that "under Alternative E harvest would occur in the Sandborn Canal...which is desired by some individuals for consideration as a Wild and Scenic River." We believe Sandborn Creek and Canal is subject to the anti-degradation clause that applies to all eligible wild and scenic rivers. The anti-degradation clause prohibits any development activity in these waterways. Therefore Alternative E is not a viable option due to the inclusion of numerous cutting units and roads in the eligible corridor. Likewise, Unit 341104 (143) appears to occur in the eligible river corridor of the eligible Farragut River.

As previously requested, what documentation does the Forest Service have that indicates this system was not worthy of inclusion in the Wild and Scenic Rivers System? These particular waterways have outstandingly remarkable fisheries and wildlife, recreation, scenic, cultural, and ecological values. We recognize that the outstandingly remarkable values found to be possessed by the main stems of Salt Chuck, Sandborn Creek and Canal, and the Farragut are also possessed by their tributary and headwater streams/lakes.

SEACC and NCC have previously discussed in comments on the TLMF Draft Revision its conviction that the Tongass specify corridors one-mile wide (1/2 mile each side of stream), as is consistent with the intent and spirit of ANILCA. SEACC and NCC concur that such buffers along the eligible drainages in the study area be maintained in your development of alternatives.

Planners are no longer restricting themselves to "segments" of rivers, but are identifying a range of rivers that meet the broad definition of river provided in the Wild and Scenic Rivers Act:

*"River" means a flowing body of water or estuary or a section, portion, or tributary thereof, including rivers, streams, creeks, runs, kills, fills, and small lakes. 16 U.S.C. §1286 (a)*

66.83

Refer to the response to comment 66.82. No timber harvest is proposed in the Revised DEIS near the rivers you are concerned about.

66.84

Please refer to documentation in the Forest Plan on the Wild and Scenic River eligibility process. The objective of this EIS is not to determine the qualifications of project area rivers for inclusion as Wild and Scenic Rivers.

66.83

66.84



The Wild and Scenic Rivers Act and the forest planning process offer the opportunity to protect river systems. The goals of the Wild and Scenic Rivers Act can best be achieved through preservation and recognition of river systems as integral wholes, with full recognition for the contribution of headwaters and tributary streams. The study and protection of headwater and tributary streams is an important development of the wild and scenic river system. In many cases, headwaters and tributary streams contribute significantly to outstandingly remarkable values present in the main stem of a river, particularly downstream fisheries.

Previously, EIS's on the Tongass indicate that "visual quality outside the eligible river corridor would be managed in accordance with adjacent land use designations." However, as the NCC has continually reminded the Forest Service, FS Handbook Regulations [Chapter 8, Sections 8.2.1.a and 8.2.2.a.] require that "timber outside the corridor for wild and scenic status; but within the viewshed, be managed and harvested in a manner which provides special emphasis to visual quality" [emphasis added]. This requirement plainly provides that timber outside the corridor is subject to special management to protect visual resources, regardless of the particular value or values that led to a determination of eligibility. We maintain that clearcutting does not provide special emphasis to visual quality. As we previously pointed out, all units in the viewshed of the eligible river drainages must be managed with this requirement in mind and they may not be clearcut. We are unaware of any consideration of visual quality given to units in the viewshed of these eligible rivers in this analysis.

Without careful attention this project may degrade the outstandingly remarkable scenic values of Salt Chuck and the Sandborn River/Canal and Farragut. These impacts must be disclosed and considered in the SDEIS.

The Failure To Acknowledge Or Discuss Evidence That Timber Inventory Highly Exaggerates The Number Of Acres Available For Logging Makes A Mockery Of The NEPA Process.

In scoping comments submitted by both NCC and SEACC, we asked the Forest Service to "address the relationship between the logging that would occur in the project area and the long-term productivity of the area with regard to all renewable forest resources." <sup>8</sup> In particular, both groups asked that the DEIS disclose and analyze "falldown," or the difference between that amount of timber estimated in the project area in Alternative P of the 1991 draft supplement to the TLMP Revision and the actual amount available for logging. <sup>9</sup> While the DEIS contains a two page discussion on the "Relationship Between Short-Term Uses and Long-Term Productivity," it is at the very end of the DEIS and is filled with little more than empty

<sup>8</sup> See letter from SEACC to Gunther, Parametrix, at 5 (Oct. 31 1994)(scoping comments); accord Letter from Narrow Conservation Coalition to Parametrix at 16 (October 31,1994)(scoping comments).

<sup>9</sup> Id. at 6, id. at 15.

66.85

The Farragut River is the only river near or within the project area that is proposed by the Forest Plan for Wild and Scenic River listing. No units or roads in the Port Houghton/Cape Fanshaw project area can be seen from this river. The Sandborn River, Rusty River, and Glen Creek (all of which occur in the project area) were determined to be ineligible during the Forest Plan planning process for Wild and Scenic River status because they have no outstandingly remarkable river features and are not unique within the region.

66.86

Refer to response to comment 63.69.

66.86



66.87 The GIS map referred to is the TIMTYPE map. Also refer to comment 63.66.

rationalizations and rhetoric. The Forest Service completely failed to assure that Parametrix, the EIS contractor, disclosed and analyzed this significant issue in the DEIS. The failure to respond to significant issues raised by the public during the scoping process makes a mockery of NEPA's purpose: "to foster excellent action," by insuring that high quality and accurate information is presented to the public and decision maker. 40 CFR 1500.1(b) & (c).

To comply with NEPA, the Forest Service must disclose all of the data and studies of truly available acreage, including the Irland Report, the Forest Service response, the CPOW MELP,<sup>10</sup> the Control Lake LSTA, (Exhibit 6) data accumulated during preparation of the North Revilla and Upper Carroll Inlet EISs, and data from project planning and implementation from the Chatham and Stikine Areas. The discrepancies between these studies/data and the Alternative P schedules must be evaluated and explained.

This consistent pattern of evidence, analysis and experience will indicate that far less timber is available in the Port Houghton project area than expected under Alternative P from the draft 1991 supplemental TLMP revision. The information will show that the Forest Service has inflated the number of acres available for logging. The chronic overcutting of Tongass timber caused, in part, by those inflated estimates, not only harms sustainable forest uses, including commercial fishing, tourism, recreation, and subsistence and sport hunting, but means a drastic reduction in the amount of timber available for those hoping to make a living from Tongass timber in the future.

The DEIS (at p. 3-4) states that "[t]he field observations and measurements were used to refine the GIS map to more accurately calculate the area of timber stand types." However, the DEIS fails to explain where this "GIS map" comes from. If it is based on the timber base identified for Alternative P, then the Forest Service needs to say so and explain the impact from using those inflated numbers to justify providing KPC, a convicted felon, with timber from this project under its long-term contract. Every study of actual acreage available, such as the Central Prince of Wales MELP, Control Lake LSTA, has confirmed that much less forest can be logged than is scheduled under Alternative P. Moreover, the Forest Service now has admitted that, as the planning process gets more site-specific through field reconnaissance and project

<sup>10</sup> See comments submitted by the Sierra Club Legal Defense Fund on the Central Prince of Wales Supplemental DEIS, on September 25, 1995.



implementation, the actual forest available will be reduced by an additional 23 percent to 43 percent. The total of these reductions is truly available acreage far below that scheduled under Alternative P.

- 66.88
- The LSTA referred to has remained in draft form until completion of the Final EIS.
- 66.89
- For the table shown, differences in net land area can be attributed to state selected land and changes in project area boundaries. Differences in net productive CFL and suitable available timber are from quantitative estimates obtained from the stand exams conducted in the project area during field surveys. The increased timber volume available in the project area does not alter the EIS discussion on short-term uses and long-term productivity.

**66.88**

We are further concerned that the DEIS fails to state whether a site specific MELP was completed for this proposed sale as required by the Alaska Regional Guide. If so, the Forest Service should be very concerned about the quality of work performed by the contractor. In fact, according to Forest Service personnel during NCC's initial inspection of the Houghton planning record on March 22, 1996, the Logging System Transportation Analysis (LSTA) or MELP is only in draft form. The latest draft LSTA available for review was dated April 25, 1994, nearly two years ago!

**66.89**

To avoid confusion we have prepared the following chart comparing the numbers of acres in the project area according to the 1986 TLMP, the controlling forest plan, and those reached by Parametrix in the DEIS.

	1986 TLMP <sup>11</sup>	Port Houghton DEIS
net land area	144,680	136,317
net productive commercial forest land	49,337	85,693
suitable available	35,834	67,735

The Forest Service needs to explain the 48 percent discrepancy between the operable acres identified in the 1986 amendment and "whatever" Parametrix actually used. The Supplemental DEIS also needs to disclose the impacts flowing from this overestimate and explain how this inflated estimate of actual available timber acres effects "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity," as required by NEPA.

<sup>11</sup> The acres in MA C1.4 are taken from p.33 of the 1986 TLMP Amendment, and the acres in MA SO1 are taken from p.88.



66.90 Why was information and data from the site specific USTA, prepared by the contractor for this project not disclosed or analyzed in the DEIS? This data must be disclosed and the Forest Service must then apply a reasonable falldown factor to the result.

66.91 For information on the timber available in the project area, please refer to Section 3.1 of the Revised DEIS.

66.92 Comment noted. We think the new Forest Plan and the Revised DEIS for the Port Houghton/Cape Fanshaw project are consistent with your stated investment objective.

Refer to the response to comment 63.66.

66.92 The Forest Service Relied On An Arbitrary And Capricious Procedure For Calculating Proportionality For This DEIS.

In determining proportionality, the Forest Service must use timber volume, not acres, and volume must be determined based on an accurate methodology rather than the TIMTYPE database. The Forest Service has failed to do so in this DEIS. The Forest Service simply states "The Tongass Timber Reform Act of 1990 (TTRA) requires that volume classes 6 and 7 be harvested in proportion to other volume classes as they existed within a Management Area prior to passage of the act (November 28, 1990), a practice referred to as proportionality." (DEIS 4-5). Information is provided (Table 4-5), which displays the area and proportion of volume Classes 6 and 7 logged for each alternative B violates it's own agency guidelines for proportionality of -0.50 percent spelled out in the Forest Service Handbook for long term contracts. 12 The DEIS assures the reader that the TTRA proportionality requirement will apply to any KPC offerings used to implement this project. As stated above, the FS previously indicated their intent to offer a substantial proportion of the volume from this sale to KPC. We wonder why the proportionality exceedances identified in this DEIS were not adjusted to conform to agency regulations (however faulty), prior to release of this DEIS.

Regardless, the court in The Wildlife Society, et al. v. Barton, No. J93-001-CIV (Alaska), issued an order finding that the Forest Service's use of the methodology in the "current Forest Handbook" to determine proportionality was "arbitrary and capricious."

Two reports were completed and released this past spring on alternative methods for determining proportionality. The first report, Evaluation of Photo-Point Inventory Methods for the Estimation of Timber Volume and Proportionality in Southeast Alaska, is a scientific evaluation of four different methods for determining proportionality. This

<sup>12</sup> See USDA Forest Service Region 10 Supplement 2409, 18-93-3 to Forest Service Sale Preparation Handbook.



66.93 Refer to response to comment 53.5.

report was completed in April of 1995. The second report, Alternatives To Using The Timber Type Map For Determine Proportionality Under The Tongass Timber Reform Act, is a May 23, 1995 summary of the first report, and a recommended direction for implementing Section 301(c)(2) of the Tongass Timber Reform Act on the Tongass. Comments on these reports prepared by the Alaska Chapter of The Wildlife Society were submitted on June 28, 1995 by the Sierra Club Legal Defense Fund on behalf of its clients, plaintiffs in three ongoing cases on the Tongass, including SEACC. We request that these reports, and The Wildlife Society's comments, be incorporated into the planning record for the Port Houghton project.

As stated in those comments, we agree with the first report's conclusion that "method C is probably advisable since photo measurements can be made with higher precision without substantially increasing cost." The DEIS fails to disclose the alternative methodologies or apply the best available approach, Method C, which was recommended in the first report. The Forest Service must apply the recommended alternative to the TIMTYPE methodology for this sale to successfully halt highgrading as mandated by Congress in the TTRA. Achieving proportionality in the Port Houghton project area is also essential for the conservation of highly productive wildlife habitat. Additionally, in determining proportionality for volume class 6 and 7 stands, the Forest Service must separate volume class 6 and 7 stands. In this DEIS, and in all past timber sales, the Forest Service has lumped the two volume classes together resulting in excessive logging in class 7 stands. Field surveys should be done to identify locations of high volume timber and verify the actual amount of volume classes 4, 5, 6, and 7 in the Port Houghton project area.

A review of the proportionality analysis contained in the Port Houghton DEIS reveals that the Forest Service has failed to meet it's own proportionality requirements under action alternative B in MAs SO1 and C14, and alternative D in MA SO1. Because "there is no additional proposed harvest within the project area." (DEIS at 4-11), there will be no opportunity to fix any proportionality departure in MAs SO1 and C14 before the end of the KPC contract. Consequently, all of the alternatives considered in the supplemental DEIS should meet proportionality requirements today.

The Forest Service's Strategy For Maintaining Old-Growth Dependent Wildlife Is Scientifically Indefensible And Illegal.

The Forest Service must do more than merely maintain viable populations of wildlife. ANILCA requires the agency to maintain healthy and huntable populations of subsistence species. See 16 U.S.C. Sec. 3112(1). Accordingly, the alternatives considered in the DEIS must provide for healthy, harvestable populations of subsistence fish and wildlife resources. Since the Wildlife Analysis Areas (WAA) in the project area presently do not have the deer habitat capability to provide the deer required to support the future level of subsistence and sport hunting in the area, any of the logging proposed in the action alternatives will only exacerbate the situation. The Forest Service proposes a project-specific retention strategy for the



Houghton/Fanshaw project area. We are concerned with the adequacy of the Forest Service's on-the-ground assessment of site-specific impacts from the action alternatives.

The DEIS states that all action alternatives presented in the DEIS would result in impacts consistent with the implementation of the TLMP (1979a as amended), Alternative P of the TLMP Draft Revision (1991a), and the Alaska Regional Guide (USDA FS 1983b). (DEIS 1-10). According to the DEIS only the Preferred Alternative B unit and road configuration would not conflict with the Habitat Conservation Areas initially recommended by the Interagency Viable Wildlife Population Committee (VPOP)(Suring et al. 1993). (DEIS 2-6). This is insufficient to ensure that the Forest Service will be able to maintain healthy and huntable populations of wildlife widely distributed across the Forest. All the experts who have reviewed Tongass wildlife conservation measures have urged the Forest Service to do more now.

According to the risk analysis included in the report prepared by the VPOP Committee, viable populations on mainland areas the Tongass of will be in serious jeopardy if timber harvest takes place as planned under the TLMP Draft Revision (1991a). See Suring et al., 1993. Why didn't the DEIS disclose what the VPOP Committee thought would happen to wildlife on the Port Houghton/Fanshaw Geographic Province under Alternative P and the 1979 TLMP? The only explanation of the habitat conservation strategy contained in the DEIS is included in the Glossary with a brief description of HCA's. The public has no idea where these HCA's are located, nor any idea of the strategy and featured species. Moreover, the DEIS fails to identify or address the recommendations of the Congressionally mandated peer review of the VPOPS wildlife strategy conducted by the Pacific Northwest Research Station (See Kiester and Eckhardt 1994) (Herein referred to as PNW Peer Review) or disclose and analyze the recommendations made in the reconciliation memo from the VPOP committee in response to the PNW Peer Review. Those actions are set forth in Appendix II to the Interagency Committee's Response to the Peer Review of: A Proposed Strategy for Maintaining Well-distributed, Viable Populations of Wildlife Associated with Old-growth Forests in Southeast Alaska (May, 1994)(attached as Exhibit 8).

In designing alternatives for consideration, all of the immediate interim actions recommended by the VPOP Committee, in response to the PNW Peer Review, must be considered for maintaining options for conserving healthy wildlife populations pending completion of the TLMP Revision. Among the immediate actions recommended by the VPOP Committee were expanding proposed "large" and "medium" Habitat Conservation Areas (HCA) and connecting corridors, prohibiting logging and road building in volume class 6 and 7 old-growth forest occurring below 800 feet in elevation, and connecting HCAs with habitat corridors that are off-limits to logging. The VPOP Committee also recommended establishing "small" HCAs in each large watershed on a project basis. The is no explanation of location of small HCA's for the preferred alternative, if in fact they were actually "avoided" as the DEIS suggests.



It is crucial to note that the Draft EA 1994, which the Forest Service believes the alternatives to be consistent with, did not disclose or analyze the findings or recommendations of the PNW Peer Review or the immediate actions recommended for habitat protection by the VPOP Committee in response to the PNW Peer Review. Specific shortcomings in the draft EA approach include: (1) the absence of wildlife corridors and matrix management prescriptions to ensure connectivity; (2) the failure to expand HCAs and require that high-quality old-growth forest be included in HCAs; (3) permitting salvage sales within HCAs; (4) failing to actually allocate any lands for "large" and "medium" HCAs; and (5) the failure to provide for adequate habitat protection around goshawk nests located in 1994.

The VPOP Committee, the PNW Peer Review, and the Draft EA, conclude that current practices are insufficient to maintain viable populations of wildlife. Arbitrarily implementing selected pieces of the VPOP Committee's strategy is simply not enough; all of the recommended actions must be disclosed and analyzed in the DEIS to ensure that all options remain open for developing a comprehensive viable wildlife population management strategy in the TLMP Revision. As explained in the Petition and Request for Stay filed by the Alaska Rainforest Campaign with Regional Forester Phil Janik on June 24, 1994, (attached as Exhibit 9 ) proceeding with logging without fully implementing the VPOP Committee's viability strategy would be scientifically indefensible and illegal.

The Forest Service failed miserably to build a specific retention plan for wildlife as mandated by its own agency direction. According to the 1985-86 TLMP Amendment, Appendix D-3, "as a minimum, information presented for each area to be considered for retention prescriptions must include:

1. Location of the respective Wildlife Habitat Management Units (WHMU) and Fish Habitat Management Units (FHMU);
2. Acreages contained within prospective retention areas by timber volume class;
3. Species to be featured;
4. Specific retention prescription; and
5. Description of habitat values to be maintained or enhanced by managing the unit under the prescribed retention treatment."

The Forest Service should include a map of existing old-growth in the project area with clear delineations of various volume classes. What is the value of a site specific plan of forest management activities, without a map of the existing forest? Likewise, a similar map should be presented that clearly depicts the six proposed retention blocks and corridors identified for the various action alternatives, and clarify how the FS intends to maintain healthy and huntable populations of wildlife. To call what's left over after logging, i.e., TRA buffers and beach and estuary fringe suitable protection for wildlife is ridiculous. Regardless, what is the value of retention if it is only temporary and deviations are routinely granted regionwide that allow logging of retention acres?



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Table 4-13 indicates that the number of patches of high-volume old-growth forests stands in the project area and their average size will be reduced dramatically, however the narrative concerning the table only equates in general terms how some species might be affected. Noticeably absent from the Table is the percent of forest in patches greater than 5,000 acres, however, according to Figure 4-1 no large patches of old-growth greater than 5,000 acres will remain following the unsustainable rate of logging proposed in the preferred alternative. It is the fragmentation of these patches that have the greatest impact on species requiring large, contiguous blocks of old growth, including Northern goshawk, sharp-shinned hawk, and marten, and their subsequent listings as threatened and endangered.

The Forest Service needs to halt this planning process and prepare a supplemental DEIS to address these deficiencies. The supplemental DEIS should clarify the intent of the old-growth retention strategy if harvesting will result in further fragmentation, reduced block and corridor size, and increased threats to wildlife health. The Forest Service claims that that Public law 104-19, Section 502 (A) of the 1995 Rescission Bill prohibits the Forest Service from implementing Habitat Conservation Areas. The Senate Recession Bill was a spending bill in effect only until the end of FY 95, September 30, 1995. Since the restrictions on developing HCAs are no longer in effect, the Forest Service can now legally implement an HCA strategy. Once again, please incorporate this analysis into the supplemental DEIS.

By only considering alternatives that log in sensitive areas, reduce the size of old-growth blocks, require large amounts of new road building, and reduce the effectiveness of wildlife corridors, the Forest Service is both eliminating its options for future action to maintain healthy wildlife and threatening the health of wildlife directly in this project.

Further, we note that the requirement in NFMA planning regulations to provide for wildlife viability is directly applicable to activities, such as this proposed project, which implement a Forest Plan; this "minimum management requirement ... guide[s] the development, analysis, approval, implementation, monitoring and evaluation of forest plans." See 36 CFR 219.27 (emphasis added).

#### Impacts To Goshawks And Wolves Violate NFMA, TTRA, and ANILCA.

The U.S. Fish and Wildlife Service decided not to list the Queen Charlotte Goshawk and Alexander Archipelago Wolf as threatened or endangered in 1995, primarily because the Forest Service committed itself to revising TLMP and implementing an interim wildlife habitat strategy. We are surprised the Forest Service appears to be taking such a lackadaisical approach to protecting the long-term health of the wolf and goshawk. Given the amount of roading and loss of quality habitat, the Forest Service is failing to take a proactive approach to insuring these species remain at healthy population levels. The Forest Service must use its discretion and management authority to rigorously enforce the laws applicable to national forest management. The

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Figure 4-1 identifies old-growth forest patches greater than 5,000 acres in size by alternative. Also, refer to the revisions in Section 4.3 and the response to comment 12.2.

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Protection of the wolf and goshawk in the project area will follow all applicable standards and guidelines. The total number of goshawk nests that occur in the project area are unknown. This information will likely never be known (only estimated) as nests are hard to locate and much of the area will not be entered or field surveyed for the proposed timber harvest. Since the goshawks were observed in the field during 1994, ADF&G, USFWS, and the Forest Service have conducted some field surveys to determine continued nesting at known or probable nest sites. Refer to revised Sections 3.4 and 4.4 of the Revised DEIS.



agency's failure to do so in the Pacific Northwest has forced the taking of drastic and expensive conservation management actions under the Endangered Species Act, and resulted in severe economic and social disruptions to local communities. The Forest Service should take steps now to avoid increasing the risk for threatened and endangered listing of wildlife species on the Tongass.

The Forest Service must seriously consider legal alternatives that maintain the viability of wildlife on the Tongass and incorporate these alternatives into the supplemental DEIS. The DEIS (at p.2-34) claims, "protection of Northern goshawk will be done in accordance with existing requirements." **We are unaware of any scientific biological information to support these "guidelines."** In the absence of credible scientific information a more conservative approach should be taken.

Three goshawk nest sites have been located in the project area. Reports during the pre-scoping phase of sale layout indicated seven possible nests in the sale area. What is the status of these other reported possible nest locations?

The DEIS admits alternatives proposed in the DEIS are likely to have negative impacts on goshawks (DEIS at p. 4-44, 2-29) however offers no credible plan to protect these birds i.e., measures proposed by the VIAQPS and peer review.

Contradictory statements included in the DEIS indicate Alternative B proposes 97 acres of ground disturbing activity in the 600 acre core of the nest site (DEIS 2-30) while Table 4-16 indicates 162.1 acres of roads and units in the 600 -acre core radius of Goshawk nests. Please discuss this discrepancy, and provide accurate and verifiable figures to indicate the acres of roads and units proposed within the proposed 600-acre nest core.

Although the DEIS claims no harvest units were proposed by any alternative in the nest areas around each of the three nest sites we wonder just how 'near' such activity must be for the the Forest Service to deem them as such. (DEIS 4-44). For instance Table 4-16 indicates cutting unit 341097 (98) as close as 528 feet to the Sandborn nest site and a road only 260 feet from the nest site! The Forest Service even admits this is closer than the inadequate "previously proposed guidelines of a minimum distance of 600 feet for a disturbance period greater than 3 days." (DEIS 4-46). Absolutely no mitigation, although ineffective, was even proposed on unit cards other than to "avoid disturbance to possible goshawks in the area." At a minimum, timing restrictions could have been mandated for possible nest disturbing activities! Likewise extensive helicopter activity is scheduled in the vicinity of known goshawk nest sites. What measures will the Forest Service take to prevent disruption and abandonment of goshawk nest sites from helicopter noise? These measures must be clearly displayed in the supplemental DEIS and on every unit card for the sale.

The lackadaisical attitude displayed by the Forest Service for almost certain adverse impacts goshawks and their habitat is unbelievable! We find it amazing that the FS



66.97

Your recommendations were considered in drafting the alternatives in the Revised DEIS. Note that the location of any mountain goat migratory routes between the mountain peaks in North and South Fanshaw is unknown. Units or roads in this area are not located within suitable or marginal mountain goat habitat as identified by the mountain goat habitat capability model for this area. The northern boundary of the salvage areas are located adjacent to suitable mountain goat habitat. Otherwise, high value winter range and kidding areas are outside of the unit and road pool considered in the Revised DEIS.

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even considered units 333087 (89) and 333088 (97), and road route 8494 as viable options considering the known risks to goshawks. The appearance that possible relocation of road 8494 and dropping of these two units from consideration is adequate mitigation for impacts to these nests is unfounded.

Likewise, possible goshawk disturbance by the logging of 35-acre unit 27103 (158) near Cat Creek and the construction of nearly two miles of specified road 6131 to access that unit displays the near frantic attempt the FS is conducting to satisfy timber volume requirements of convicted felons, KPC - despite risks to sensitive species. Potential impacts to the known nest site near Negro Creek are similarly unbelievable. The Forest Service must implement the strategy recommended in the VIAOPS peer review, now.

According to the DEIS (at p. 3-40) a wolf den is located approximately 400 feet from a unit, however no mitigative measures were suggested to prevent impacts to this wolf den. The DEIS (at 4-47) cursory discussion of gray wolf admits that few wolves inhabit the project area, consequently the loss of this den site could be significant for the overall wolf population of the area.

#### Impacts to Mountain Goats

We have serious concerns about the effects of the proposed project to mountain goats in the study. Impacts from logging in goat winter range and increased access pose serious risks to this species. As we previously stated, we are particularly concerned that the Forest Service designate permanent retention of all high value goat winter range. Mountain goats are a relatively uncommon, high profile species on the Tongass which are very susceptible to disturbance by man's activities... both consumptive and non-consumptive. A limiting factor for this species is the availability of winter range. Forest wide high value goat winter range amounts to only a small portion of the CFL, yet it has considerable importance for the survival of the species. We do not see any justification for logging and road construction in this rare habitat type which cannot be replaced for several hundred years.

While we believe that proposed mitigation measures such as timing restrictions, distance restrictions for helicopter activity, etc. can minimize impacts, we do not believe that any development near these cliff areas can be adequately mitigated. Any alternative proposed for this sale should provide for an unaltered mountain goat migration corridor between Saranac, Jamestown, and Dahlgreen peaks (Road 6130 and associated units). The risks to this isolated herd from the proposed logging activity are serious. Also Unit 381140 (18) and the associated road on the North Shore of Port Houghton pose unacceptable risks to goats in this area.

Please include a map in the supplemental DEIS depicting high value winter range and kidding areas for this species in relation to the proposed logging and road construction



The Proposed ANILCA Findings Are Arbitrary And Capricious.

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According to the DEIS, proposed timber harvest in the project area would reduce the carrying capacity (habitat capability) of Sitka-blacktail deer by 3 to 14 percent. (DEIS 4-24). No high-value deer habitat exists in the project area making the marginal habitat much more valuable. The footnote at the bottom of Table 4-12 concerning MIS carrying capacity, indicates that, "Canopy closure 25-30 years after timber harvest could result in an additional 30-80 percent decrease in deer habitat capability in clearcuts depending on elevation and snow conditions." [emphasis added]. The DEIS concludes future demand for subsistence use of deer from the project area could result in a significant possibility of a significant restriction in the subsistence use of deer (DEIS 4-92). The action alternatives would all worsen the situation - quite significantly 25-30 years from when the project was finalized. A cumulative analysis should be conducted to display long-term effects following logging on all species following canopy closure. Because KPC is not scheduled to complete operations in the project area until after the turn of the century, cumulative effects must be analyzed to the end of the rotation.

The standard used by the Forest Service to determine a subsistence restriction is unlawful. A finding that proposed activities "may" restrict subsistence is what the law requires. The heightened standard used by the Forest Service, "a significant possibility of a significant restriction," is contrary to court rulings and Congressional intent.

Although the heightened standard makes no meaningful difference with respect to deer, it may effect findings regarding other fish and wildlife species, such as salmon. The Anadromous Fish Habitat Assessment found that "procedures similar to those currently used to protect fish habitat on the Tongass ... failed to prevent declines in fish habitat capability, and resulted in increasing and now significant risk to the viability of salmon and steelhead stocks (in the Pacific Northwest)...." See AFHA at p. 7.

Because the DEIS failed to disclose and analyze the findings in this important report, the Forest Service has failed to provide a reasoned explanation for its finding of no expectation of a significant possibility of a significant restriction on subsistence use of salmon." (DEIS 4-80). Likewise, the Forest Service ignores traditional and customary use patterns identified by ANILCA by claiming that "if fishing success declines in the Sandborn Canal subsistence use area fishers would be expected to continue to fish in other areas of Port Houghton." (DEIS 4-79).

We also find it incredible that the Forest Service - a federal agency, apparently sanctions the illegal taking of fish for commercial purposes from the project area! According to the DEIS (at p. 4-77):

*"Fish harvesting by residents of the logging community for this harvest is likely to occur, and would include harvest by the caterers who supply the*

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Refer to response to comment 66.17 and additional discussion on successional forests and wildlife in Section 4.3 of the Revised DEIS. A review of the subsistence hearings for the project that occurred in March 1996 continues to support the finding that there would be no significant possibility of a significant restriction for any subsistence resource in the project area.

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Refer to response to comment 64.55.

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66.100 Refer to response to comment 53.5. For a detailed recent evaluation of subsistence on the Tongass National Forest, refer to the Forest Plan.

catch to the entire logging crew."

The commercial use of salmon in the State of Alaska is strictly prohibited to those not holding a Commercial Fisheries Entry Commission (CFEC) permit. The DEIS suggests that the practice of illegal harvest of fish from the area has been an on-going practice and suggests no problem with this occurring in the future. Illegal harvest of valuable salmon resources from the project area, to benefit commercial caterers who feed the entire logging crew of up to 100 people in Hobart Bay (DEIS 3-72) could amount to a sizable chunk of fish. Investigations should immediately be conducted concerning this unlawful practice by caterers at Hobart. Perhaps this is the source of rumors that have reached Petersburg residents where reports of plane loads of illegally poached sockeye taken from lakes above the Rusty River were flown into the logging camp at Hobart. Other rumors abound concerning the unlawful practice by the logging crew of harvesting halibut from longlines off Hobart Point. The DEIS's dismissal that illegal poaching in the project area would be insignificant is countered by the fact that even the FS doesn't know what constitutes illegal taking of resources from the area.

The DEIS's finding (at p. 4-91) that the significant possibility of a significant restriction of deer is necessary because there are few alternatives that would avoid a significant possibility of subsistence restrictions somewhere on the National Forest is arbitrary and capricious. As noted above, the Ninth Circuit has found that the TTRA was enacted to replace the "contract driven planning process" relied upon to justify significant restrictions to subsistence harvest of deer in this project. The Port Houghton project area is also outside of KPC's primary sale area, and as such, the Forest Service cannot legally find that fulfilling the requirements of the contract make it necessary to restrict subsistence use in the project area.

The anticipated restrictions of subsistence resources and uses raise serious concerns about the range of alternatives provided in the DEIS. The DEIS failed to consider any action alternative which lessens the impacts to subsistence and deer habitat capability.

Moreover, the 1979 TLMP, did not consider impacts to subsistence because, at the time it was released, Section 810 of ANILCA had not been enacted as law. The 1986 Amendment also failed to consider subsistence or conduct a forest-wide cumulative impact analysis for impacts to subsistence resources and users from the Tongass timber program. Tying to a plan that ignores subsistence to justify restrictions to subsistence can only be described as bullheaded. Moreover, the Tongass Timber Reform Act did not direct the Forest Service to meet market demand for timber no matter what the costs to other resources and their users, but only to the extent that it can do so consistent with multiple use objectives and sustained yield, and only to the extent consistent with "other applicable law," including Section 810 of ANILCA. Consequently, the Forest Service can no longer elevate Ketchikan Pulp logging, under an outdated forest plan, over other statutory requirements.



The Forest Service states that it intends to reduce competition for subsistence resources and increased impacts to wildlife by closing logging roads after logging in the project area is completed (DEIS 4-92). What information does the Forest Service have to support its conclusion that closing roads will effectively reduce these impacts? The Forest Service deals with the project's impacts to subsistence resources, especially deer, by shucking any responsibility for mitigating the impacts to subsistence resources under this timber sale and concluding that at some time in the near future it may be necessary for the Federal Subsistence Board to restrict the number of deer harvested by non-rural hunters to leave adequate numbers of deer for subsistence users. This is insufficient mitigation and an abdication of the Forest Service's responsibility to protect subsistence resources under ANILCA and TTRA. By failing to meaningfully consider alternatives that minimize subsistence impacts, the Forest Service's conclusion that reasonable steps were taken (DEIS 4-90) is completely arbitrary.

As stated in our scoping comments, we believe the FS should seriously consider contract provisions (similar to those previously employed at the Green's Creek Mine) that prevent logging employees from using company equipment to hunt and fish. We believe this would be very effective in preventing serious impacts to fish and game populations in the area. Please do not fail to consider this recommendation in the Supplemental DEIS.

Does the Forest Service have a similar policy with regards to their own employees and/or Parametrix? The after-hours practice of hunting and fishing by Forest Service and contract personnel in company equipment in the area during 1994 raised at least a few local residents eyebrows. The sudden introduction of 40 plus Parametrix employees, countless FS workers, and possibly an entire logging crew in the area must have a substantial impact on crab, fish, etc. We believe if these individuals wish to hunt and fish, they should do so with their own equipment transported to the area with their own equipment. No mention was made of this provision in the DEIS. Please address it!

ADF&G Biologists have recently or are in the process of reviewing EIS's on the Tongass that claim to have a significant possibility of a decline in subsistence use of deer in the respective project area's. For instance, for the Ketchikan Area the Control Lake, Central Prince of Wales, Upper Carl Inlet, Lab Bay, Polk Inlet, and North Revilla EIS's all claim to have a possible significant restrictions for deer. On the Stikine Area, the Bohemia, Shamrock, Port Houghton, probably South Lindenberg EIS's all make similar claims. We suspect similar conditions for the Chatham Area. The increasing lack of adequate habitat to meet subsistence needs creates numerous current and future management problems since subsistence hunters will be competing against each other for deer. Claims made in the DEIS that subsistence hunters may go "elsewhere" to fulfill subsistence needs offer little solace to those subsistence users who see their subsistence resources being sacrificed for convicted felon, KPC. Please identify "other areas" nearby where subsistence hunters may relocate to where no

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Contract provisions restricting use of company-owned vehicles for hunting will be considered for the ROD. Refer to response to comment 53.5.



current or future subsistence restriction exist.

DEIS Fails To Demonstrate the Proposed Project Is Cost Effective.

According to the Assessment of Contractor Prepared Timber Sale EIS's on the Tongass National Forest, Alaska Region, March, 1994 there was concern by the Region 10 Office and the Office of Governmental Coordination (OGC) that the "costs of preparing EISs via contract have the effect of making TSPIRS "very red" since the benefit of released volume will not be realized until later." This is a significant issue unto itself, but becomes even more significant if the FS is not logging these areas sustainably, and may not be able to make another entry into the area in the future.

It is our understanding that the professional service contract being prepared for the Port Houghton Sale amounted to \$3.5 million for 122 mmmbf--or \$35 per mbf. We suspect that this EIS may cost as much as 10 times the projected stumpage. If these timber projects are not cost effective then the Forest Service should not be pursuing them. Once again, we formally request to have cost recovery of the Port/Houghton project elevated to a significant issue for the DEIS. We also formally request the Port Houghton/Fanshaw DEIS show a current value appraisal as was done for the Central Prince of Wales (CPOW), and a complete TSPIRS analysis after payments to the State of Alaska.

The DEIS (at 4-126) claims the stumpage value of the preferred alternative according to the "current quarter analysis" is \$63.60 using a 100% profit and risk. However, using the mid-market analysis, stumpage value is a negative \$45.84 with a 60% profit and risk margin. As previously requested, please disclose what costs are incurred by the Forest Service in administering the professional service contracts. According to the DEIS (at p. 4-125) the mid-market analysis used a weighted average of timber values and only the "production costs" at the time of the Notice of Intent. The current appraisal analysis used "current quarter values and costs". However, the DEIS failed to disclose how these figures were arrived at.

Apparently, no TSPIRS was completed that shows the PNV after payments to the State of Alaska. As we previously pointed out the DEIS must provide a clear statement concerning real production costs incurred for this timber sale. For instance, the economic analysis should account for monitoring, sale administration, and falldown in the planning as well as implementation stages (layout to logging) of the timber sale, etc.; ie., if less timber can actually be logged on the ground than anticipated, then these lower volume figures must be accounted for. We suspect given falldown and having to spread fixed costs across decreased volume realizations, the stumpage values will be "very red".

Please display the figures arrived at for both the the mid-market and current quarter analysis in Table 2-5 that depicts "Comparison of Environmental Consequences," at the front of the document. Please explain the significance of using different methods to

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This EIS is being prepared to compare environmental differences among alternatives. The cost of EIS preparation by any applicant and for any project is not required to be disclosed by NEPA. The economic analysis presented in the EIS was developed for a comparison of employment and income that would be generated from implementation of an alternative. The information presented is sufficient to make a reasoned choice among alternatives.



66.103 Refer to the revised Section 1.6.3 of the Revised DEIS for information on the Goldbelt, Inc. land exchange.

66.104 Refer to the revised road maps in Appendix B of the Revised DEIS.

66.105 Unit 381133 is on Map #3.

66.106 Refer to Section 1.2 of the Revised DEIS.

arrive at the overall economics of the sale. Which method is a more accurate picture of the real costs to the American taxpayer? Do Forest Service regulations permit timber sales with negative mid-market values?

Please consider these issues for detailed study.

Goldbelt Land Exchange

A land exchange proposed by Goldbelt Inc. in the Port Houghton project area has been in the works for sometime. Immediately preceding the "Government Shutdown" in December, 1995 formal plans to begin negotiations were announced in statewide news report. Because these actions are "reasonably foreseeable" the Forest Service must conduct an appropriate analysis and consider cumulative impacts and connected actions related to this land exchange. We urge the Forest Service to account for the proposed (as well as current) level of development on adjacent lands.

Miscellaneous

66.104 Please include the scale on road maps.

66.105 There is no unit card for Unit 3 which appears to be confused with the cross reference for Unit 8.

66.106 It is quite apparent from these comments that a Supplemental DEIS is required. Please consider and adequately address each concern we have responded to in these comments. We urge you to wait until completion of the TLMP Revision before initiating any further analysis. Thank you for considering these comments.

Sincerely,

*Rebecca Knight*  
Rebecca Knight

for  
Southeast Alaska Conservation Council  
Narrows Conservation Coalition





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March 26, 1996

Gary A. Morrison  
Forest Supervisor  
Forest Service - Chatham Area  
204 Siginaka Way  
Sitka, Alaska, 99835

Re: Draft Port Houghton/Cape Fanshaw Timber Sale EIS Project

Dear Gary:

Thank you for the opportunity to comment on the DRAFT Port Houghton / Cape Fanshaw Timber Sale EIS Project. From the year 1998 to the year 2000, the volume planned from this EIS is expected to play a significant roll in Ketchikan Pulp Company's timber harvest operations, and manufacturing facilities.

Ketchikan Pulp Company (KPC) supports the selection of a modified Alternative E. We believe the Forest Service (FS) can successfully address all of the concerns you have pointed out in the Draft EIS by making some minor changes in unit layout, harvest method and type of harvesting system used. We understand that the FS has selected Alternative B as their preferred alternative. We would like to share why we believe Alternative E is the best alternative, not only for our needs, but for the Forest Service's as well.

- 1) Alternative E has one Log Transfer Facility (LTF). Alternative B has 3 LTFs. One is on Goldbelt Inc.'s private timber land. An easement agreement between Goldbelt Inc. and the company awarded the FS volume will have to be negotiated. The other two LTFs are new. LTF B is shown to be on the edge of subsistence area. All of Alternative E's volume is hauled to one LTF, LTF A. LTF A is away from any areas which are shown to be used for subsistence uses. Using one LTF instead of three LTFs will lower mobilization costs, reduce permitting requirements, and be environmentally sound.



WARO COVE PULP MILL  
THORNE BAY LOG

OPERATING DIVISIONS

KETCHIKAN SAWMILL  
TUXEKAN LOG  
EL CAPITAN LOG  
NAUKATU LOG

TL509/A96

copy to Mr. Morrison  
on 3/27/96 JZ

Responses to Ketchikan Pulp Company

67.1 Your comments were considered in developing the range of alternatives in the Revised DEIS.

Port Houghton/Cape Fanshaw EIS

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Mr. Gary A. Morrison  
March 26, 1996  
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2) Alternative E's economics are better than Alternative B's. Alternative E provides more jobs, more stumpage receipts, a higher regional income, and a greater contribution to the GSP. Not only are the economics better, but the visual quality seems to be maintained also. Alternative B has at least one area where the planned harvest does not meet the Visual Quality Objectives of Partial Retention. Alternative E does not have any of these areas.

3) The effect of harvest in the Port Houghton / Cape Fanshaw project area by land type, Table 4-1, shows Alternative E will harvest less acres, and a smaller proportion of the commercial forest lands. Yet Alternative E produces more volume, and has a greater economic benefit.

In conclusion, the proposed logging in the Sandborn Canal watershed in Alternative E seems to be the main factor for the FS choosing Alternative B. The FS has, by law and their own regulations, enough protective requirements which can be put into effect which will make any logging in the Sandborn Canal watershed an environmental showcase for good road building and timber harvesting practices. KPC believes, with a few changes, Alternative E is the best alternative selection for all of the parties involved.

Sincerely,



Kent P. Nicholson  
Contract Manager

KPN:ak

cc: O. J. Graham

Port Houghton/Cape Fanshaw EIS

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TL509.A96



# Alaska Forest Association, Inc.



111 STEDMAN SUITE 200  
KETCHIKAN, ALASKA 99901-6599  
Phone 907-225-8114  
FAX 907-225-5920

March 26, 1996

Abigail Kimbell  
Sitkine Area Forest Supervisor  
Petersburg, Alaska  
FAX: (907) 772-5895

Re: Port Houghton/Cape Fanshaw Timber Sales

The Alaska Forest Association supports Alternative E for the proposed harvest. We feel it meets the purpose and need direction contained in the current TLMP and provides much needed timber to Ketchikan Pulp Company and small business operators. At the same time, it impacts the lowest total acreage (5471 acres) while still providing the highest timber volume of 123.3 mmbf.

Alternative E provides the most jobs, best regional income and highest net stumpage value - almost twice the next highest alternative. These financial gains may be obtained while still maintaining the environment and multiple use definitions within this area. After a review of the draft EIS summary, we feel Alt. E makes the best sense and use of this sale. Only one log transfer facility will be required under this alternative and yet there is no significant increase in road construction. In addition, Alt. E has no more effect on TES (threatened, endangered or sensitive) species habitat, subsistence species or geological concerns than the other alternatives. In fact, Alt. E has less visual impact on the total area than the other alternatives, particularly to Inner Port Houghton and Salt Chuck where Alt. B and C do not meet visual objectives. Although there will be some visual impact in the vicinity of Sandborn Canal, both the visual impact and concern for the valuable fisheries of this area will be mitigated and protected with minimum 100 foot stream and 500 foot beach buffers.

As noted in the summary, there currently is a "low level of subsistence use of this area due to the substantial distance of the project area from most user communities." The new roads this sale will provide could increase subsistence use as well as opportunities for recreational hunting and use.

The Alaska Forest Association believes that Alternative E of the Port Houghton/Cape Fanshaw Timber Sale Project satisfies all the needs. We see no detrimental, long-term effects and fully support best forest management and stewardship practices of the US Forest Service with this alternative.

Sincerely,

*Elizabeth West*  
Elizabeth A. West  
Director of Communications

SERVING ALASKA'S FOREST INDUSTRY

3/26/96  
MAR 29 1996  
FANSHAW N.F.

## Responses to Alaska Forest Association, Inc.

Your comments were considered in developing the range of alternatives in the Revised DEIS.

68.1

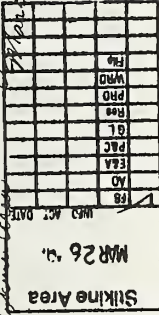
Port Houghton/Cape Fanshaw EIS

D-222

DEIS Public Comments



2727 Susan A  
Jensen, AK 998  
Forest supervisor, Hingham  
Box 309  
Bethel, AK 99833



The following comment and observa-  
pertain to the Port Houghton Cape Tan-  
Timber Sale Project:

Last year I purchased a small  
boat with which I plan to start  
a charter service. This is a result of  
being excluded from the commercial fish-  
ing limited entry program and the new I.F.  
system for bottom fish, even though I  
have been a commercial fisherman for  
years. I plan to take individuals or  
small groups sightseeing to Cape Tan-  
and Port Houghton. Portage Bay may  
have been a much more practical  
destination, but of course its quality



(2)

that make it a place for natural experience will soon be destroyed by logging. The two huge timber sales south of Petersburg on Kupreanof Island will make that region unfit for people to have a natural Alaskan experience as well. I know this because I have seen what happens when a logging camp moves in. The impact of a camp with 50 to 150 workers and their families living, recreating, hunting and fishing for subsistence is not to mention the logging itself radically changes the nature of the place the camp moves into. In addition to destroying an area's tourism potential, it is very disruptive and



69.1

Noise impacts have been added to sections 4.3, and 4.7.

69.2

The EIS and the Forest Plan recognize the value of recreation to the lifestyle and economic well being of Southeast Alaskan residents. However, portions of the project area have been allocated to LUDs where timber production is permitted to provide for the lifestyle and economic needs of the people who depend on forestry. Other portions of the Tongass National Forest, including areas within the Port Houghton/Cape Fanshaw project area, have been identified for recreational use.

Port Houghton/Cape Fanshaw EIS

D-225

DEIS Public Comments

69.1

3.  
stressful to the wildlife. Trucks, chain saws, gun shots, loud whistles, dirt bikes, snow mobiles, and skiffs with loud outboard create noise that travel far across the valleys and waterways. These impacts are greatly underestimated in the DEIS, and deserve much greater consideration.

69.2

As it is now, the Cape Fanshaw Port Houghton area is an ideal recreation and tourism destination, a gold mine of tourism dollars that will become ever more valuable with each passing year. The DEIS underestimates this value by pointing to the past instead of the future. It is a serious mistake to judge the sustenance, tourism,



69.3

HCA's, also referred to as Old-Growth Habitat LUDs, are discussed in Section 4.3. Also, refer to the responses to comments 12.2 and 58.6.

4.  
and ~~the~~ recreational values of this area  
by past use. Every one knows how  
rapidly the charter business is expanding.  
We all know how quickly the  
wilderness is disappearing in our country  
and the rest of the world. With the  
ever-expanding world population, it  
is clear to see that, valuable as  
this area is, it will be even more  
so in the very near future.

Forest Service personnel involved in  
this timber sale are fully aware of all  
this. The reason they don't acknowledge  
it is because their own jobs are  
dependent on planning timber sales.

For these reasons and others, I  
believe a supplemented DEIS that

69.3



5) identify a wider range of action alternatives is needed. More habitat conservation areas as described by VIAPOPS and the peer review should be included in the alternatives.

For many years the southern shore of Port Houghton and the coastline around to Cape Farnshaw was a big producer of king crab. Now there are small populations of immature king crab beginning to make a come back. It is essential that these crab populations are protected so that the king crab fishery can return to its normal productivity. For this reason, any timber that is cut should be taken out by barge.



⑥

Responses to Eric Lee

Refer to response to comment 58.1 and 66.7.

69.5

I would also like to object once again to the preliminary laying out of this sale prior to the public scoping process.

Sincerely,  
Eric Lee  
ERIC LEE

69.5



Corrected  
Version  
BS

John B. Sisk  
P.O. Box 21664  
Juneau, AK 99802  
Phone Fax: (907)586-2544

Abigail Kimbell, Forest Supervisor  
Sitkine Area, Tongass National Forest  
P.O. Box 309  
Petersburg, AK 99833  
Fax: 907-772-5895

MAILED  
MAR 26 1996  
TONGASS N.F.

March 26, 1996

Dear Ms. Kimbell:

Please record this letter in the official record of public comment on the Port Houghton timber sale draft environmental impact statement.

I have several concerns with the Port Houghton sale. First, this area, Port Houghton and Sanborn Canal, is a high priority area for conservation of fish and wildlife habitat. Sanborn Canal is a big salmon producer, and although current fish prices are low these fisheries will, over the long haul, be a pillar of a diversified economy. Port Houghton and the Houghton estuary and salt chuck are rich habitat areas that command special attention. The U.S. House of Representatives voted twice to designate Port Houghton and Sanborn Canal as a Wilderness Area.

Second, I am concerned that the Forest Service has not looked at a sufficient array of alternatives to the proposed level of logging in the plan. In this sale as in several recent logging proposals on Prince of Wales Island the Forest Service appears to be locking into a large logging target (in this case 125 million board feet) prematurely, to the exclusion of other cutting levels and alternative harvest areas. This may not pass legal muster, which would ironically mean that by trying to get more timber out of a sale the agency might be courting a substantial delay of the sale.

The timing of the Port Houghton sale is also a concern, since the latest edition of the Tongass Land Management Plan, which will assess a range of land allocations, timber cutting schedules and habitat conservation options, will be out for public review next month.

Finally, I want to emphasize that Port Houghton and Sanborn Canal have become crucial areas for Juneau tourism businesses and for visitors to the Inside Passage and the Tongass National Forest. The public values ascribed to Port Houghton have changed. Long a key commercial fish producer, Port Houghton is now a very important eco-tourism destination. I cannot support the logging of 125 million board feet from this area at a time when the area's primary economic function is changing toward tourism and recreation.

Thank you very much, Ms. Kimbell, for your attention and consideration. I understand the tight situation the Forest Service is in with regard to the politics of timber supply, yet I urge

Responses to John B. Sisk

- 70.1 Refer to responses to comments 3.3, 10.2, and 12.2.
- 70.2 Refer to response to comment 5.1.
- 70.3 Refer to response to comment 10.2
- 70.4 Comment noted.
- 70.5 The new Forest Plan has been published, and applicable standards and guidelines applied to the Port Houghton/Cape Fanshaw Revised DEIS. Your comments were considered in developing the range of alternatives in the Revised DEIS.



you to incorporate the upcoming public comment on TLMF into your planning, and to consider some additional alternatives to your current proposal.

Sincerely,

  
John Sisk

cc: Phil Janik, Regional Forester  
Pam Gunther, Parametrix, Inc.

Responses to John B. Sisk



71.1 Refer to the response to comment 17.1.

71.2 Section 4.3.1.3 describes the amount of old-growth forest that occurs in the project area (Alternative 1, the no-action alternative) and provides the amount that would be lost under the action alternatives. Under maximum harvest area conditions (Alternative 4), 93 percent of the old-growth forest would remain in the proposed project area.

71.3 Several of the alternatives in the Revised DEIS propose to close most of the roads and avoid potential impacts to wildlife from vehicle access. Roads are expensive to build, and every effort was taken to minimize road mileage for the proposed project. Helicopter logging was considered in some alternatives to decrease road mileage (refer to Table 2-4).

71.4 Refer to the response to comment 3.3, 10.2 and 12.2.

Pam Gunther

Parametric, Inc.

5808 Lake Washington Blvd. N.E., Suite 200

Kirkland, Wa. 98033

3/24/94

Dear Ms. Gunther:

I am concerned about such a large cut in this area from the earlier proposal. It seems that if enough timber base can not be found for KPL in the original contract area perhaps the Forest Service should re-evaluate the contract. This is especially true if the contract gets extended. The timber should be given in smaller entries to local timbermen.

Taking even 10% of old growth over a few entries will not leave any critical old growth habitat, referring to D.E.I.S. 3-32 fourth paragraph.

The reading area is too large, I am concerned about increased pressure on Mt. Coats, deer and especially bear. Roads should be closed off after entry.

No entry should be made in Sandborn Canal, even unit 138 Alt. B should be



eliminated. In addition, no entry east of Sandborn units 24, 25, 26, 28, 30, 31 should be made for visual reasons, and to eliminate one LTF site for such a small volume of timber. Fisheries are too important.

A few other points of concern no longline fisheries were listed in fisheries review.

No review of owls in the wildlife section.

71.5

71.6

I am really concerned about the sale, as mentioned in my first paragraph, because of size and over the years, on new entries, the percentage of old growth will be virtually eliminated or be reduced to a very small %. This will happen if long term contracts are extended as the timber base is much smaller now, since native lands, wilderness lands etc. have been set aside. The total volume of high volume old growth is smaller to choose from.

Of alternatives given, Alt. B is one of the best but I still do not agree with it.

James H. Eastwood  
Box 1155  
Petersburg, AK. 99533

Sincerely

James A. Eastwood

Responses to James A. Eastwood

This information has been added to Section 3.2.3.

The wildlife section was limited to MIS species. No owls are MIS species for the Tongass National Forest. Eleven species of owls could be expected to occur in the project area. The only species seen or heard during field surveys were the western screech owl and the northern pygmy owl. The eleven species would be expected to occur in clearcuts, alpine habitat, estuarine, muskeg, and forest. Impacts would occur to species that are primarily limited to forested habitat. These species include northern hawk owl (uncommon), great gray owl (rare), and boreal owl (uncommon). The habitat requirements of an MIS species that most closely represents these owl species would be the hairy woodpecker.

Refer to the responses to comments 13.2, 17.1, and 30.3.





DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, ALASKA  
P.O. BOX 898  
ANCHORAGE, ALASKA 99506-0898

MARCH 2 5 1995

REPLY TO  
ATTENTION OF

Regulatory Branch  
East Section  
9-830854

Pam Gunther, Project Leader  
Parametrix, Inc  
5808 Lake Washington Blvd. N.E., Suite 200  
Kirkland, Washington 98033-7350

Ref.: Port Houghton/Cape Fanshaw Timber Sale Project

Dear Ms. Gunther:

This is in response to the December, 1995, Port Houghton/Cape Fanshaw Timber Sale Project, Draft Environmental Impact Statement (DEIS), which provides information concerning proposed timber harvest activities and road construction and log transfer facilities. The location is in the vicinity of the Chatham and Stikine Areas of the Tongass National Forest on the mainland of Southeast Alaska, approximately 30 air miles northwest of Petersburg and 80 miles south of Juneau.

Based on information contained in the DEIS, we concur with your determination that wetlands and waters which are under the Corps of Engineers' (Corps) regulatory jurisdiction occur within the project area. The Corps' regulatory authorities that relate to timber harvest operations, are based on two laws. Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 USC 403) prohibits the obstruction or alteration of navigable waters of the United States (U.S.) without a permit from the Corps. In addition, Section 404 of the Clean Water Act (CWA) (33 USC 1344) prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a Department of the Army permit.

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include "muskegs", forested swamps, marshes, bogs, and similar areas. Excluding the no action alternative, the DEIS's review of the alternative impacts, Table 2-5, Comparison of Environmental Consequences, indicates that between 143 to 191 acres of wetlands would be directly impacted by the construction of logging roads, which would require from 75 to 97 stream crossings. The logging roads would provide access to upland timber, and between 338 to 598 acres of wetland timber which would be harvested under this proposal.

Responses to USACOE



Responses to USACOE

Note	
	Enclosures with this letter are BMPs which are included in the planning record.
72.1	A wetlands map and accompanying reports were sent to USACOE under separate cover.
72.2	Road corridor widths for all analyses are 50 ft, including construction disturbance. This was assumed to be the maximum width, and may be considerably less when the road is constructed. Refer to the new footnote on Table 2-4.
72.3	Roads will be constructed for silvicultural activities. The road design does not consider recreational use. Any recreational use would be incidental.
72.4	End-hauling/disposal of road construction debris would be conducted at sites established by the Forest Service. Because of the added expense, end-hauling occurs at critical areas requiring this activity. Normally all material is spread out or disposed of in the road prism.

The construction or maintenance of forest roads is exempt from regulation under Section 404 of the Clean Water Act, where such roads are constructed and maintained in accordance with Best Management Practices (BMPs) listed at 33 CFR 323.4(a)(6) to assure that flow and circulation patterns and chemical and biological characteristics of waters of the U.S. are not impaired, that the reach of waters of the U.S., including wetlands, is not reduced, and that any adverse effect on the aquatic environment is otherwise minimized. A copy of the mandatory BMPs is enclosed with this letter. Your attention is particularly directed to BMPs (i) through (viii).

The DEIS indicates that the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual was used to determine a site's wetland status and acreage. However, the DEIS does not provide specific information concerning the geographic location of wetlands within the study area, which would be required in order to demonstrate avoidance and minimization of impacts to wetlands as required by the BMPs. In this regard, we would appreciate a copy of the wetland delineation mapping prepared for this project. This mapping would facilitate our review and determination of permit requirements.

The DEIS indicates that the projected road construction impacts to wetlands are based on road acres with no specific road corridor dimensions for major or minor roadways being stated. Based on the information we have, we can not determine if design criteria would or would not meet the BMP requirements (i) and (ii).

The DEIS indicates that some of the proposed roads would accommodate expanded recreational use, in particular the roadway serving Hobart Bay through Goldbelt, Inc. land. Please be aware that the forest road exemption applies only to roads which would be primarily used for normal silvicultural activities, (after demonstrating compliance with the BMPs), such as harvesting of trees. Any roads which would be built to accommodate other uses besides normal silvicultural activities would not necessarily be exempt from 404 requirements. In this regard, those road segments identified as Semi-Primitive Motorized may not meet the BMP requirement that the road be constructed solely for silvicultural activities, and would therefore require Corps of Engineers authorization by issuance of a permit.

Appendix B, Road Summary Cards reflect that many of the road segments will generate materials (excess soils/stumps) which requires disposal. Disposal sites in areas subject to Corps jurisdiction are not exempt and would require 404 authorization prior to the disposal activity, or alternatively, disposal in uplands.

72.1

72.2

72.3

72.4



- 72.5 Comment noted. This information will be provided following release of the ROD.
- 72.6 Wetlands were avoided commencing at project initiation and continuing throughout the preparation of the Revised DEIS. To the fullest extent possible, all roads were placed outside of wetlands. There are no other possible alternatives for roads that are currently crossing wetlands. This effort was done in the initial aerial photograph review for the LSTA, development of the unit and road pool, field review of the unit and road pool, and selection of the units and roads for each alternative. Verification of these efforts may be observed in the documents associated with these activities which are available for USACOE's review.

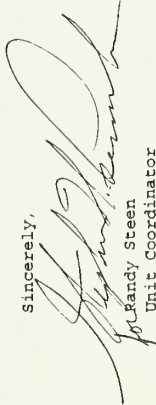
72.7 Comment noted.

The DEIS states that new log transfer facilities (LTF's) will have to be constructed. In addition to requiring the Corps' authorization, pursuant to both Section 10 of the RHA and Section 404 of the CWA, LTF's also require a U.S. Environmental Protection Agency, National Pollutant Discharge Elimination System (NPDES) permit under Section 402 of the CWA. As specific details become available regarding the placement and construction of the proposed LTF, please provide this office with this information for a determination of jurisdiction and, if necessary, the appropriate authorization.

Minimizing impacts to waters of the U.S., including wetlands, should be incorporated into your review and design of alternatives with regard to meeting the BMEs and for those project components which would require individual 404 authorization. Corps permits are issued only for projects which clearly demonstrate compliance with the Clean Water Act Section 404(b)(1) guidelines. Those guidelines state that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, as long as the alternative does not have other significant adverse environmental consequences. In those cases where the activity associated with a discharge is proposed for a "special aquatic site", such as wetlands, practicable alternatives are presumed to exist unless clearly demonstrated otherwise. It is the applicant's responsibility to rebut that presumption, when appropriate, by providing a detailed and verifiable discussion of alternatives for our consideration. An alternative is considered practicable if it is available and capable of being accomplished after taking into consideration costs, existing technology, and logistics in light of overall project purpose.

We appreciate your request for comments concerning this proposal. We are available for further discussion of our comments. We encourage you to contact us at your earliest convenience in light of your need to proceed with your project plans. Please refer to file number 9-830434 in future correspondence or if you have any questions concerning our requirements. You may contact Mr. John R. Klutz of my staff by telephone at (907) 753-2712, or by FAX at (907) 753-5567.

Sincerely,

  
Randy Steen  
Unit Coordinator

Enclosure





## United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
1889 C Street, Room 119  
Anchorage, Alaska 99501-5128

ER 96/058

Ms. Pamela Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd. N.E.  
Suite 200  
Kirkland, Washington 98033

MAR 28 1996

Dear Ms. Gunther:

In response to your December 7, 1995 request, we have reviewed the Port Houghton/Cape Fanshaw Timber Sale Project Draft Environmental Impact Statement (EIS). We offer the following comments (see Enclosure #1) for your consideration.

73.1

We remain concerned about the cumulative effects of this project in combination with other ongoing and proposed timber harvests across the Tongass National Forest (Tongass), particularly in relation to the long-term viability of species. We encourage the U.S. Forest Service (USFS) to implement a conservative ecosystem approach in the final planning for this proposed project and to discuss such an approach in the Final EIS. Timber harvest on private lands, we believe, should be included in the wildlife effects and cumulative impacts analysis.

73.2

In recent decisions the Fish and Wildlife Service (FWS) determined that listing the Queen Charlotte goshawk and Alexander Archipelago wolf for protection under the Endangered Species Act were not warranted. In part, those decisions were based on expectations of the USFS employing species-specific protection strategies in the revised Tongass Land Management Plan (TLMP). We believe that in the Final EIS, the USFS should adopt conservative interim goshawk and wolf guidelines to assure continuance of a viable population across the Tongass.

73.3

The Draft EIS states that Habitat Conservation Areas (HCAs) will not be implemented in response to Section 502(A) of Public Law 104-19 (Rescission Bill), signed by the President July 27, 1995. It is our understanding that as of September 30, 1995, this law no longer applies. Since the Draft EIS was published after that date, we suggest that implementation of HCAs or reserves be considered in the Final EIS--as they are being considered for inclusion into the TLMP. We suggest including in all project alternatives in the Final EIS--large, medium, and small old-growth forest reserves or HCAs and wildlife travel corridors, as defined in the interagency Viable Population Committee's (VPOP), 1993, draft strategy, A Proposed Strategy for Maintaining Well-Distributed, Viable Populations of Wildlife Associated with Old-Growth Forests in Southeast Alaska, with the peer review suggested modifications. We believe old-growth blocks are critical for maintaining viable, well-distributed populations of wildlife across the forest landscape.

73.4

### Responses to USFWS

Note	
73.1	Enclosures with this letter are references cited, letters, and memoranda. Please note that this letter was sent past the deadline for comments on the 1995 DEIS.
73.2	A conservative ecosystem approach has been followed in developing the range of alternatives. Refer to the response to comment 12.2 concerning viability. Please refer to Chapter 3 Affected Environment that describes how timber harvest on Goldbelt Inc. lands was considered in this EIS.
73.3	The new Forest Plan was released in 1997 and includes conservative measures to ensure viable populations of goshawks and wolves.
73.4	HCAs, also referred to as Old-Growth Habitat LUDs, are discussed in Section 4.3. Also refer to the responses to comments 12.2 and 58.6.



In the FWS Notice of Intent comment letter, dated October 13, 1994, to the contractor, Parametrix, Inc., (see Enclosure 2), the FWS formally requested copies of any completed or continuing preliminary wildlife studies in preparation of the Port Houghton/Cape Fanshaw Timber sale to be sent to the FWS Southeast Alaska Ecological Services office. During the review period for this Draft EIS, the FWS also requested, via telephone, copies of several resource inventory and effects analysis reports from the USFS. The FWS did not receive these reports in time to include them in these review comments, but may provide additional comments on this Draft EIS after these reports have been received. We believe these documents are required to conduct a thorough review of the proposed project effects on fish and wildlife resources.

We appreciate the opportunity to provide comments for the Port Houghton/Cape Fanshaw Timber Sale Draft EIS. For your convenience, we have enclosed copies of referenced letters (enclosures). If you have questions about our comments, please contact Carol Hale, FWS, at (907) 586-7240.

Sincerely,



Regional Environmental Officer - Alaska

Enclosures (5)



ENCLOSURE #1

Responses to USFWS

GENERAL COMMENTS

SPECIES OF CONCERN

As a result of a recent FWS policy change, those species formerly described as "Category 2 Candidate Species" are now referred to as "species of concern." Species of Concern are species for which the FWS has available information which indicates populations may be declining or facing threats. The FWS, USFS, and Alaska Department of Fish and Game (ADFG) are cooperating in the preparation of conservation assessments for three such species (Queen Charlotte goshawk, Alexander Archipelago wolf, and marbled murrelet) in accordance with the December, 1994, Interagency Memorandum of Understanding. The long-term land management requirements of these and other old-growth dependent species are also being addressed through revision of the TLMP. We suggest the Final EIS identify how the proposed timber sale will achieve and continue to support these on-going efforts.

Several timber sale proposals on the Tongass, including the Port Houghton/Cape Fanshaw Timber Sale, are at various stages in the National Environmental Policy Act (NEPA) process. Collectively, these sales are expected to have adverse effects on habitat for the goshawk, wolf, and other old-growth forest associated species by removing old-growth forest and fragmenting large old-growth blocks, which are critical for maintaining viable, well-distributed populations of wildlife across the forest landscape. Given the ongoing, cooperative interagency efforts to gather more information on goshawks and wolves, and their habitat requirements throughout the Tongass, we suggest the Final EIS state how the proposed action will support those efforts.

We suggest that a cumulative impact analyses be conducted for goshawks and wolves prior to identification of a selected alternative for this sale. We believe these assessments should be conducted at the landscape level to address losses of habitats throughout the Port Houghton/Cape Fanshaw area, including private land, and included in the Final EIS. Subsequent NEPA documents for the Port Houghton/Cape Fanshaw Timber Sale should, we believe, show these cumulative effects on goshawks and wolves and their habitats.

Queen Charlotte Goshawk

Recent analysis by the FWS found that listing the Queen Charlotte goshawk as endangered pursuant to the Endangered Species Act was "not warranted" based, in part, upon insufficient scientific and commercial information. The on-going interagency conservation efforts to assure goshawk population viability across the Tongass were also considered important in the FWS' decision. However, USFS management project planning practices in response to goshawk population viability concerns appears unchanged. The Draft EIS states that the USFS August 18, 1994, Interim Guidelines for Goshawk Habitat Management will be used during this project. We have advised the USFS that these guidelines are inadequate based on current available information

73.6

We understand the USFWS changed their policy again and dropped the term "species of concern". The alternatives in the Revised DEIS are consistent with the new Forest Plan, and ensure long-term protection of old-growth dependent species.

73.7

Sections 3.3 and 4.3 discusses the amount, extent, and location of old-growth habitat in the project area that would be used for maintaining viable, well-distributed populations of wildlife across the forested landscape.

73.8

Cumulative effects have been added for goshawks and wolves as requested.

73.9

The alternatives in the Revised DEIS are consistent with the Forest Plan standards and guidelines for protecting goshawks.



(see Enclosure 3). Those guidelines are based on guidelines used in the southwestern United States in 1991. Since that time, the USFS Southwestern Region has significantly improved these standards. However, the FWS Albuquerque Regional Office (see Enclosure 4) has identified shortcomings in these improved standards. We suggest the USFS use the improved guidelines and changes suggested by the FWS Albuquerque Regional Office in preparing the Final EIS.

The Draft EIS (Page 4-46, paragraph 3) states that "effects on the goshawk population are likely to be minor." We disagree with this statement and are concerned that goshawk habitat may be adversely affected by this timber sale. It is unclear how the USFS 1994 Goshawk Guidelines can be applied to the Negro Creek nest when the nest location is not known. Carol Hale, an FWS biologist, and Rich Lowell, an ADFG goshawk biologist, visited this nest site in June, 1994, and could not confirm its location. The tree that had been marked as the nest tree did not contain a nest or exhibit certain characteristics of known nest trees (Hale, personal observation).

The project Biological Evaluation states that large areas were excluded from harvest to protect general goshawk habitat, but the known nests sites are located in areas being planned for harvest. There are three confirmed nest sites in the project area west of Sanborne Canal and goshawks responded to recordings several times in 1994 near the units east of Sanborne Canal. The Draft EIS (page 4-46) states that "Goshawk Foraging Areas of 6,000 acres have been identified" for these nests, but based on radio telemetry, goshawk home ranges in southeast Alaska show a high variation in size, from 1,800 - 47,955 acres for males and 675 - 275,300 acres for females. The Draft EIS (page 4-44) also estimates there are 10 pairs of goshawks in the project area. This project area population size estimate was based on the 1994 Queen Charlotte Goshawk Interagency Committee Workshop findings that 8,000 acres is more realistic of goshawk home ranges and on only 10 relocations collected from one female in the project area. The 8,000 acre home range used in the Draft EIS also suggests that all home ranges are the same size. Goshawk home ranges in other areas of southeast Alaska have been found to be much larger than 8,000 acres when 30 relocations were used to determine home range sizes.

We remain highly concerned about the status of the Queen Charlotte goshawk in southeast Alaska. We encourage the USFS to adopt conservative interim guidelines in the Final EIS, so as to not further compromise the available habitat base needed to assure a viable goshawk population across the Tongass until the Revised TLMP is implemented.

#### Marbled Murrelet

According to the Draft EIS, the Port Houghton/Cape Fanshaw area appears to be an important breeding and foraging area for marbled murrelets. Marbled murrelets typically are associated with mature, old-growth forest habitat which provides one or more critical elements of their life requirements. We agree with the USFS that the proposed timber harvest is likely to impact local murrelet populations as a result of such habitat loss. However, there is not enough information on the marbled murrelet population in southeast Alaska to conclude that there would be only minor impacts to the population overall (page 4-46). We believe the proposed harvest may have significant impacts on this species in the Port Houghton/Cape Fanshaw area. Research conducted

73.10

The statement in reference has been modified. The nest tree for the Negro Creek goshawk was not confirmed at the time the adult goshawks and young were seen because the young had fledged. However, because two young were seen calling for their parents in close vicinity to the marked tree, it was believed that either this tree or a tree very close to this tree supported a nest. It is still believed that a nesting pair of goshawks occurs in close vicinity to this area.

73.11

It is recognized that actual home ranges do vary. The range of alternatives in the Revised DEIS address your concern for goshawk habitat and all the alternatives are consistent with Forest Plan standards and guidelines and land allocations intended to protect the goshawk population.

73.12

The new Forest Plan was released in 1997 and measures have been incorporated to ensure a viable goshawk population across the Tongass National Forest.

73.13

The statement in reference has been modified. Cumulative effects has been added to the marbled murrelet discussion. Regional guidelines would be followed to protect individual nest sites that are found.

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73.14	The surveys were conducted to determine the presence of marbled murrelets in the project area, not to estimate populations. We do believe that, from survey results, marbled murrelets occur throughout the project area. Another survey would likely only confirm initial results at significant expense.
73.15	A cumulative effects analysis that considers all timber harvests in the Tongass National Forest is addressed in the Forest Plan.
73.16	Refer to the responses to comments 12.2, 13.2, 30.3, and 58.6 regarding large tracts of old-growth forest available for murrelet nesting.
73.17	The wolf MIS model acknowledges effects from roading. A 2-mile road buffer is used for a 20 percent reduction in habitat suitability.

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in the murrelet's Pacific Northwest range suggests that there are sufficient indicators to demonstrate a cause and effect relationship between loss of mature forest and a reduction of murrelet populations. As the forest is fragmented further, more forest edge is created increasing the probability of nest predation (Nelson and Hamer 1996). We also agree with the recommendations in the Biological Evaluation (page 26) that a plan should be developed prior to timber harvest that identifies threshold levels and management measures that would be taken if the murrelet population of foraging birds drops significantly below expected numbers. However, murrelets in southeast Alaska are known to fly considerable distances to forage (FWS unpublished data), thus local water use may not accurately reflect nearby upland use. We believe the Final EIS should analyze how cumulative and secondary impacts of timber harvests on USFS and adjacent private lands would effect this species and address how individual nest sites would be protected if any are found before or during timber harvest.

The Draft EIS (page 3-39, paragraph 2) states that 32 proposed harvest units were surveyed for murrelets during the summer of 1994, with detections recorded at 23 units (72 percent). The Biological Assessment specifically states that these surveys were conducted over 13 survey periods between May 30 and June 18, 1994, (3 weeks). Conducting surveys during one 3 week period is not sufficient, we believe, to determine the extent of murrelet use of forested habitat. Repetitive surveys for at least a two year period should have been performed. We suggest the Final EIS discuss the adequacy of the murrelet surveys and the implications and conclusions, if any, that were derived from them.

The Biological Assessment states that none of the action alternatives are likely to have a significant impact to marbled murrelets due to the large numbers of murrelets in southeast Alaska. We believe there is not enough information on this population to support this conclusion. It has been determined that murrelet populations do not decline immediately after an impact due to the high adult survivorship and the low reproduction rate of this species (Piatt and Nasland 1995). Population numbers may not reveal the effects of an impact for years. The assessment also states that the impact the project would have on the marbled murrelet population is unknown. The effects analysis for this species is incomplete for these reasons, and does not discuss the cumulative effect of other timber harvests on the Tongass.

We suggest a landscape management plan be developed and discussed in the Final EIS that would include monitoring and retention of large tracts of mature, old-growth forest with suitable branch structure to support murrelet nests.

**Alexander Archipelago Wolf**

The FWS 12 month "not warranted" finding for the Alexander Archipelago wolf was published in the Federal Register on February 23, 1995, pursuant to the Endangered Species Act. However, the FWS remains concerned about the direct and indirect impacts of timber harvest on wolf populations occurring across the Tongass. These impacts may be exacerbated by additional road construction and its attendant use by humans if not adequately managed. We suggest that these potential impacts be fully discussed in the Final EIS.



**73.18** The Draft EIS states that the carrying capacity for wolves within each Wildlife Analysis Area in the project area would not change under any alternative, and would decrease by only one wolf under Alternative B. We believe the current wolf and Sitka black-tailed deer habitat capability models (Suring and Degayner 1988) on which this conclusion was based are outdated, overly simplistic, and are not useful in determining population viability (Kiester and Eckhardt 1994). More empirical information is available and, we suggest, should be used to update these models and rerun them for the Final EIS.

**73.19** Between 84.5 and 111.3 miles of road construction is proposed for this project. We suggest the Final EIS present a complete analysis of impacts to the wolf population due to this action and increased hunting pressure resulting therefrom. The Draft EIS (page 4-48) states that "the primary factor that would affect wolves in the Project area is whether hunters would use motorized vehicles to hunt the larger mammals," but it does not include an analysis of how much this impact would effect the local wolf population. The Viable Populations Committee recommended that shoreline access also be taken into consideration when conducting impact analyses. We suggest the Final EIS contain an analysis of the direct, indirect and cumulative impacts the proposed roads and shoreline access would have on the continued viability of wolf populations.

**73.20** The FWS estimates that within the next 10 to 30 years, given historic and on-going old-growth timber harvest on Federal, State, and Native corporation lands, significant localized reductions in the Alexander Archipelago wolf populations would occur as clearcut areas transform into second growth stands, thus rendering such areas unusable by deer. Wildlife Analysis Area 2927 deer densities appear to be low due to the northern exposure, high average annual snowfall, steep terrain, predation; and the extent of hunting pressures in the area is unknown; yet this project, that would further reduce deer carrying capacity by up to five percent is now being considered. The Draft EIS states that all the proposed action alternatives would result in reduced populations of Sitka black-tailed deer with a corresponding reduction in the wolf population. We suggest the Final EIS address ways to maintain wolf populations in this area, including maintaining habitat for deer, minimizing habitat fragmentation and road construction, development and implementation of monitoring programs, and the effectiveness of on-going land management activities.

#### FISHERIES

**73.21** A recent report to Congress, (Anadromous Fish Habitat Assessment, January 1995) concluded that the Best Management Practices (BMP), currently employed across the Tongass, were inconsistently applied and failed to adequately protect fish habitat. The report stated that a more conservative approach to protect fish habitat should be taken.

**73.22** Several subwatersheds have been identified as being at high risk of road sediment delivery. The Draft EIS states it is imperative that BMP's be fully implemented to protect these areas. Based on the January 1995 report, it appears that they may not provide adequate protection. We believe the Final EIS should describe what additional measures would be employed to ensure subwatersheds protection.

**73.18** The MIS models used for this project were the most recent models available that have undergone peer review. These models are believed to provide enough information for a comparison of effects among alternatives.

**73.19** A primary approach to maintaining wolf populations in the project area is through the establishment and maintenance of the Old-Growth Habitat LUDs. New road construction is minimized to the extent possible and most alternatives include provisions for road closures after the sales. Monitoring programs have been added and are described in Appendix E.

**73.20** Refer to response to comment 12.2

**73.21** Refer to response to comment 12.6.

**73.22** With the application of BMPS, TTRA stream buffers, and Forest Plan standards and guidelines, water quality standards are not expected to be exceeded. Refer to the Monitoring Plan in Appendix E for elements specifically included to address fish habitat and water quality concerns.



Responses to USFWS

73.23	Class III streams would received buffer width protection as prescribed by the Forest Plan standards and guidelines and as shown on the unit cards.
73.24	Additional monitoring to protect water quality has been added to Appendix E.
73.25	Refer to response to comment 73.24.
73.26	The USDA-FS would prefer not to add the ADF&G catalog numbering system on project area maps to avoid errors and the responsibility for creating new ADF&G numbers for previously unidentified streams. ADF&G has the prerogative to place their numbering scheme on project area maps.
73.27	Discussion on neotropical migrants has been added to Sections 3.3 and 4.3 of the Revised DEIS.
73.28	Refer to responses to comments 13.2 and 30.3. With most of the Tongass off-limits to timber harvest and 84 percent of the commercial grade old-growth projected to be remaining after implementing the Forest Plan for 100 years, populations of old-growth dependent species, like the brown creeper, are expected to be maintained.

The effect of all alternatives on fish habitat over time would be a reduction in the amount of woody debris supplied to Class III streams within a given watershed because of the removal of old-growth forest (p 4-29). We suggest that Class II and Class III streams need additional buffers to maintain large woody debris for soil stabilization, prevent the loss of nutrients, reduce sedimentation that can degrade downstream fish habitat, and prevent blow downs caused by high winds, and that this issue be addressed in the Final EIS.

The National Forest Management Act (NFMA) states that management activities having serious and adverse effect to fish habitat shall not be permitted. The Tongass Timber Reform Act (TTTRA) provides direction for fish protection in section 103(a). We suggest the Final EIS identify what method of monitoring would be used to ensure compliance with these requirements, including the frequency of inspections and the percentage of units inspected within the project area. We also suggest a cumulative analysis of past and current fish habitat losses within the sale area and adjacent timber sale units be identified in the Final EIS. We suggest this analysis address activities on both public and private lands.

We suggest a monitoring plan be established and discussed in the Final EIS to ensure remedial actions are implemented when adverse impacts are discovered. We also suggest that an index of health be developed for anadromous and resident fish streams potentially impacted by this project. Annual monitoring of age-class distribution would be helpful to verify that successful reproduction continues.

We suggest that the Final EIS use the catalog numbering system employed by the ADFG, where applicable. The numbering system is currently used in the Atlas and Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes.

**OTHER TRUST RESOURCES**

**Neotropical Migrant and Resident Birds**

We have responsibility for certain trust resources, including migratory and resident bird species; such as the Pacific-slope flycatcher, Townsend's warbler, hairy woodpecker, and brown creeper (the latter two are USFS Management Indicator Species). The Draft EIS states (page 4-34) that old-growth is ranked as the most important breeding habitat for 41 bird species, and that reduction of this habitat would result in loss and fragmentation of significant habitat for them. We believe the Final EIS should address direct and cumulative impacts the proposed project would have on these and other Federal trust species potentially affected by the loss of mature, old-growth forest and/or forested wetlands. As age structure and seed producing coniferous forest declines due to clearcutting, specialized species, such as red crossbills, inevitably would decline, with possible local extirpations.

As indicated by Tables 4-12, hairy woodpecker and brown creeper habitat capabilities would decline as a result of this and future timber sales. With the amount of habitat capability decline predicted for this and future timber sales within the Stikine area, it is not clear how old growth



forest dependant species would be maintained. We believe the Draft EIS understates the impacts that the proposed harvest would have on brown creepers. It attempts to portray the harvest impacts on brown creeper habitat as small by stating that the differences among action alternatives are not considered greater than natural population fluctuations from severe weather conditions. The Draft EIS then cites Haapanen (1965) stating "severe weather and lack of food is the most decisive factor limiting populations of (hole nesting) species wintering in conifer stands." We believe the most decisive factor limiting old-growth dependent species is the lack of required habitat itself. Brown creepers are associated exclusively with old-growth habitat (Sturing et al. 1988, Della Sala et al. 1994) and function as an Management Indicator Species responding to changes in that habitat. The direct impacts of this proposed harvest would be additive, increasing the severity of the effects of weather and resultant lack of food.

73.29

The proposed project would reduce the existing old-growth forest blocks to half their size in the project area. Theoretically, as more forest is clearcut more old-growth edges would be developed that are exposed to wind, snow accumulation, and radiant energy which cause drier conditions, thus changing the forest micro climate.

73.30

Old growth stands provide important winter habitat features, such as large dominant trees, dense tree canopy, multilayered canopy, and snags, for such species as golden-crowned kinglets and brown creepers. It provides thermal protection from wind and precipitation (Della Sala et al. 1994) that forest edges do not. Della Sala et al. (1994) observed particularly low numbers of golden-crowned kinglets in young growth following storms that coated tree branches with ice and snow, preventing them from foraging for insects. The Table 4-14 shows brown creepers utilizing patch sizes as small as 25 acres, but a patch that small is all edge (S. Kim Nelson, 1993 Letter to Larry Edwards, Enclosure 5).

73.31

Local populations of old-growth dependent neotropical bird species can be reduced by habitat fragmentation which alters the climate of the forest micro environment that interior forest dependent species require (Wilcove 1987). Forest edges cause an increase of predation, competition, hatching failure, and loss from inclement weather (Chasko and Gates 1982). Chasko and Gates (1982) found that songbird nest success rates were lower in nests less than 45 meters from the forest edge than in nests further in the forest due to predation. Corvids, such as crows, ravens and jays, are edge species that are known forest predators. Forest edge-effect predation can extend as far as 50 to 600 meters into the forest, requiring forest tracts to be greater than 247 acres in size before forest-interior features are found (Chasko and Gates 1982, Wilcove et al. 1986, and Yahner and Scott 1988). We suggest the Final EIS include a justification for using only 330 feet as an edge buffer as apposed to using a wider buffer.

73.32

It is unclear if the impacts of roads were included in the fragmentation analysis. The USFS has built an extensive road system into large tracts of old-growth forest blocks throughout the Tongass in order to harvest and transport logs to log transfer facilities. Roads create edge effects and contribute to forest fragmentation. Studies have shown that roads and trails less than 10 meters wide adversely impact nesting bird communities in forested areas (Askins 1994)

73.29

Comment noted.

73.30

Comment noted.

73.31

The references cited refer to studies conducted in the northeastern United States where different edge predators occur that are not present in Southeast Alaska, excepting corvids. Edge effects vary by species and no one single estimate of edge applies to all species. The use of 330 ft. followed examples by Payne and Bryant (1994). ADF&G is recommending a 300 ft. edge buffer for some big game species.

73.32

Units and roads were considered in the edge analysis.



Responses to USFWS

73.33	Refer to response to comment 73.32. A map showing forest interior outside of edges would be essentially the same as Figure 4-2 considering the scale needed for an 11 X 17 figure. To show significant differences between an old-growth map and an old-growth map without habitat edges, a considerably larger map would be necessary which is not cost justified for this EIS. Refer to response to comment 73.27.
73.34	The Forest Plan replaced the old-growth retention area approach with an old growth conservation strategy that includes a system of old-growth forest reserves. As a result, no additional analyses for retention has been added to the Revised DEIS.
73.35	Additional discussion on cumulative effects on wetlands has been added to the Revised DEIS.
73.36	Refer to response to comment 73.35.
73.37	No additional mitigation measures beyond wetland avoidance and application of BMPs have been identified for wetlands.
73.38	A more thorough cumulative effects analysis for subsistence considering all past, present, and future timber sales can be obtained from the Revised Supplement to the Draft TLMP Revision (1996).

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We suggest the Final EIS fully address these impacts and include an analysis of the adverse impacts that existing and planned roads (permanent and temporary) have on forest fragmentation and old-growth dependant breeding bird populations. We also believe the Final EIS should include a map showing locations of forest interior without the edges; or depict them in a different shade or color than the forest edges. Furthermore, we suggest the Final EIS include assessments that address neotropical bird habitat capability on a landscape level, and identify areas that produce large, low elevation cone crops for inclusion in retention areas.

**HABITAT CONSERVATION AREAS (HCAs)**

The Draft EIS (page 4-38) shows that a project specific old-growth retention strategy has been incorporated into this project. We agree that the Salt Chuck and Sanborne Canal areas are important wildlife use areas, as we recommended in our October 13, 1994, comments on the Notice of Intent for this project. These retention areas would maintain the option of incorporating HCAs that would meet VPOP size criteria and important wildlife habitat needs. Natural fragmentation must be clearly understood before management-induced fragmentation can be properly evaluated (Kiestler and Eckhardt 1994). We suggest the Final EIS include a map showing the old-growth retention block boundary locations for selected alternatives.

**WETLANDS**

Degradation of wetlands caused by heavy equipment impacting vegetation, impairment of natural drainage patterns, loss of nesting and foraging habitat for migratory birds and small mammals, and displacement or mortality of game species, including black-tailed deer, black bear, and wolf are a concern. Such habitat alteration can result in permanent hydrologic change, and, in some cases, loss of functional wetlands. We suggest the Final EIS address cumulative impacts on wetlands and how the goals of Executive Order 11990, as amended, would be met to avoid to the long- and short-term adverse impacts associated with wetland destruction or modification.

During road construction some excavation of wetland overburden is required. We suggest the direct and cumulative impacts associated with disposal of this material be discussed in the Final EIS. Furthermore, we suggest that the total cubic yards removed and procedures for its disposal should be described in the Final EIS.

We believe the Final EIS should identify appropriate mitigation to offset unavoidable adverse impacts which remain after all minimization efforts have been met. The objective of mitigation for unavoidable impacts is to offset environmental losses. We support restoration that returns function and value to impacted areas. Some examples are, but not be limited to: returning wetlands to pre-existing condition by removing road beds and preservation of significant habitats.

**SUBSISTENCE**

The Draft EIS uses subsistence data from surrounding lands to measure the subsistence use of the project area and to compare impacts on subsistence use before and after the project; however, the



impact of timber harvest activities in surrounding lands is not addressed. In order to make an accurate comparison, we believe the total cumulative impacts of all timber sales, past, current, and planned, within reach of the subsistence communities should be considered, since subsistence users utilize lands and waters well beyond the boundaries of the project currently being evaluated. We suggest these cumulative impacts be included in the subsistence use analysis in the Final EIS.

LOG TRANSFER FACILITY SITES

The FWS conducted underwater investigations of proposed Log Transfer Facility (LTF) sites in the project area in May 1981 and again in December 1994. The FWS also provided information about eagle nests located near these sites.

**Little Lagoon:** In 1981, the FWS found the Little Lagoon site to be acceptable for an LTF, but recommended that the area be surveyed in subsequent years to determine if herring utilize the shoreline. Appendix K of the Draft EIS includes locations of known herring spawning indicating that herring do not use this area, but Chapter 3, page 3-9, states that kelp, ideal habitat for spawning herring, is present at this site. The description of this site in Appendix K on page K-4 does not mention this kelp. We suggest the Final EIS be consistent with LTF descriptions and analysis throughout the document.

The FWS stated in it's 1981 dive report that a 330 foot buffer should be maintained around the eagle nest in accordance with the bald eagle Interagency Agreement between the FWS and the USFS. The Draft EIS stated that the eagle nest is located within 200 ft. of the Little Lagoon LTF site and is no longer being used by bald eagles. During the summer of 1995, the FWS found the eagle nest (#43) located further northwest than previous maps show (March 1, 1996 letter to USFS from Mike Jacobson, FWS Raptor Management). This nest is located almost at the same site as the proposed LTF. We suggest that the USFS investigate an area west of this location between nest #43 and nest #83 outside the 330 ft. buffer for a new LTF location and discuss this in the Final EIS.

Additionally, Appendix K, page K-4 states that the LTF is within 300 feet of a Class I stream, thus conflicting with the Alaska Timber Task Force guidelines. This information is not disclosed in the main text of the Draft EIS. We suggest that this LTF be moved out of the 300 foot buffer in the Final EIS.

**Rabbit Cove:** The Rabbit Cove site was investigated by the FWS in 1981 and was found unacceptable for an LTF site because it would seriously impact the submerged reef and associated life forms. In December 1994, the FWS again determined the Rabbit Cove site unsuitable because of this same deep water reef. Though no silt was found at this site, which may indicate some flushing occurs, the reef may prohibit sufficient flushing of bark debris. We suggest that the USFS conduct a hydrographic survey and that in the Final EIS, the LTF be aligned more westward toward the mouth of Port Houghton so that the LTF would avoid impacting the reef.

The FWS also recommended additional studies to determine if there are commercial quantities of

Responses to USFWS

73.39	The presence of brown kelps was added to Appendix K Table K-1.
73.40	The location of the bald eagle nest sites has been resolved. See letters 7 and 8.
73.41	The reference to a Class I stream within 300 feet of the LTF has been corrected. Four locations (in close proximity) for the Little Lagoon LTF site were considered for avoiding bald eagle nest sites and anadromous streams. The site proposed in the EIS was determined to be the most effective in minimizing impacts to these resources. Permit conditions issued by the USFWS for protection of the bald eagle nest site would be implemented.
73.42	The Rabbit Cove site is not included in the Revised DEIS.
73.43	Commercial quantities of Dungeness crabs and mob sea cucumbers were not documented in the survey for the Rabbit Cove site identified for this project. The site discussed in the 1995 DEIS was not the same site surveyed by the USFWS.



Responses to USFWS

73.44	The North Point LTF site was selected based on a number of factors including the availability of upland land area suitable for road access and some storage. Impacts to bald eagles were avoided to the extent possible. This site is not included in the Revised DEIS.
73.45	NPDES monitoring reports are applicable at a later stage of the project. Impacts associated with fill activities are described in Section 4.2 of the Revised DEIS.
73.46	As described in Appendix L, disposal of solid waste would follow 18 Alaska Administrative Code 60.
73.47	Comment noted.
73.48	Helicopter yarding was proposed to the extent practicable and in consideration of the alternative themes. Road costs are described in Section 4.1. Alternatives with more road miles would also have greater road maintenance costs.
73.49	To the extent known, monitoring costs associated with each proposed monitoring measure are described in Appendix E. Funding for monitoring is separate from timber sale implementation ensuring that adequate monitoring will be conducted.

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**73.44** Dungeness crabs and Mob sea cucumbers inhabit the area. We suggest the results of these studies be included in the Final EIS.

**North Point:** In December 1994 the FWS found the North Point LTF site suitable for an LTF site, except that a bald eagle nest (#53) is nearby. The FWS suggested that the LTF be relocated to the southeast of the present location.

**73.45** For all LTFs, we suggest National Pollutant Discharge Elimination System monitoring reports and impacts associated with fill activities be included in the Final EIS.

**73.46** We believe additional secondary impacts associated with LTF sites related to improper disposal of solid waste materials directly affecting marine mammals and other aquatic life using the project areas should be identified in the Final EIS. Appendix L addresses solid waste management requirements, but appropriate mitigation, along with effective enforcement measures to eliminate such improper disposal, and removal of existing solid waste materials should, we believe, be described in the Final EIS.

**ROADS**

**73.47** The Mitigation Measures section (Appendix L) recommends closure for 21 to 23 percent of the temporary or short-term roads to mitigate adverse impacts to wildlife. We are concerned about the effectiveness of the USFS road closure measures. The FWS has observed that implementation of proposed road closures, as proposed, has not eliminated or controlled access to affected fish and wildlife habitat areas. We believe post-timber operation road closures as mitigation for adverse impacts on wildlife populations is of minimal benefit to fish and wildlife if they are neither effective nor enforced.

**73.48** We recognize that road construction, maintenance and repair are extremely expensive, and suggest the USFS conduct an analysis in the Final EIS for using more helicopter yarding as an alternative harvest method to reduce the need for additional roads. Helicopter yarding reduces the need to construct roads on soils with high MM indices, reduces impacts caused by sediment loading of streams, reduces road related landslides, protects karst landscapes, and protects wetlands and habitat. It also reduces the amount of old-growth timber permanently removed by construction of roads. We suggest that short- and long-term road maintenance cost analyses be included in the Final EIS.

**MONITORING, ENFORCEMENT AND REHABILITATION PROGRAMS**

**73.49** We suggest that in the Final EIS, the BMP's monitoring plans should describe monitoring frequency, priority, and corrective measures. All monitoring, enforcement and rehabilitation programs require a commitment of personnel and budget. To ensure that such programs are maintained at a functional level, we suggest the Final EIS identify how these programs will be maintained throughout the life of the project. We suggest a cost analysis be included in the Final EIS.



**FIELD INVENTORIES**

The Draft EIS states that wildlife field surveys were conducted in 1994; however, it does not indicate the types of survey methodologies employed, the percentage of units covered, or the frequency or time of year that they were performed. We believe survey information should be in sufficient detail to allow a meaningful evaluation of the impact of the proposed project on species that may use the area. We suggest that the reports, even if summarized in the Appendices, be included in the Final EIS. We suggest the sampling methodologies and any variations therefrom be described; including sampling dates, times, and any other factors that may influence the results of sampling. A map should be included that identifies the location of all pedestrian transect, trap grids, herpetology arrays, or other sampling plots used to determine the on-site status of species.

**73.50**

**SPECIFIC COMMENTS**

**Executive Summary, page ES-1 and ES-2 (and Chapter 1, page 1-1, Purpose and Need).** A comparison of the “desired” condition with the existing condition does not necessarily show a “need” to convert virgin old-growth forest to “managed productive stands.” We suggest this be corrected in the Final EIS.

**73.51**

**Page 1-1, Purpose and Need.** The Draft EIS lists four purposes and needs for the project, but all appear to be the same purpose and need, which is to supply timber to the timber industry (#3). The other three are a means for or products of the timber supply. We suggest this section be rewritten in the Final EIS to more clearly and concisely state the purpose of the project.

**73.52**

**Page 1-2, paragraph 3.** The Draft EIS states that the timber made available through this sale may be offered to the Ketchikan Pulp Corporation (KPC). On page 4-6, it states that the preferred alternative (B) exceeds the USFS Handbook guideline of ~.50 percent within a Management Area for long-term timber sale contracts. We believe the Final EIS should address non-compliance with this guideline and the TTRA.

**73.53**

**Page 1-3, paragraph 3, sentence 3.** The Draft EIS states that the timber supply to be made available to KPC in 1996 would be “82.5 MMBF.” Using the other figures given in this section, this amount seems to be in error. We suggest the Final EIS be corrected to show the timber supply to be made available to KPC in 1996 as “92.5 MMBF.”

**73.54**

**Page 1-15, Field Studies.** In the October 13, 1994 Notice of Intent comment letter, the FWS suggested that preliminary goshawk surveys be conducted for at least 2 years or more (Kennedy and Stahlecker 1993), but the Draft EIS indicated that surveys were conducted only in 1994. Since goshawks do not use the same nest stand every year and do not always respond to broadcast calls, it could take several years of surveys in a stand having apparently suitable nesting habitat before it could be determined whether or not that stand is used for nesting (Cole Crocker-Bedford, Draft Appendix of Detailed Protocols for Surveys concerning Wildlife and TES Species for Timber Sale Planning and Assessment on The Ketchikan Area of the Tongass National Forest, 1996). We suggest this be addressed in the Final EIS.

**73.55**

**73.50** The information requested is provided in detail in the Wildlife Inventory Report for this project which has been provided to the USFWS. Every individual and agency desires differing information to be included in the EIS. The decision by the Forest Service as to what information should be included in the EIS relates to the information that is needed to make an informed choice among project alternatives. Methodologies, sampling dates, and times are not considered of importance in making an informed choice among project alternatives.

**73.51** This statement has been changed in the Revised DEIS.

**73.52** The purpose and need statement has been changed in the Revised DEIS.

**73.53** Refer to the response to comments 17.1 and 63.66.

**73.54** Refer to response to comment 3.3.

**73.55** Comment noted. Additional goshawk surveys would be conducted prior to timber sale layout to ensure compliance with applicable standards and guidelines.



## Responses to USFWS

73.56	The FWS also suggested that waterfowl and shorebird surveys be conducted seasonally in the sale area in order to avoid important areas used by these species for resting and feeding during migration and breeding, but the Draft EIS does not mention these studies. We suggest that preharvest fall and late spring waterfowl aerial surveys be conducted, and the results of these studies included in the Final EIS. These surveys will provide essential baseline data on waterfowl use in this area, and can be used to avoid these areas during helicopter yarding.	Based on existing information provided by ADF&G, USFWS, and subsistence users of the project area, optimum waterfowl and shorebird habitat is known to occur in Sandborn Canal and the Salt Chuck. The need for additional studies to confirm this information is not believed to be cost effective. None of the alternatives in the Revised DEIS propose timber harvest in these areas.
73.57	Page 2-5, Alternatives Considered But Eliminated. The Draft EIS states some "alternatives were initially considered but dropped from further evaluation primarily because the volume identified by the purpose and need could not be met." The Draft further states, under the Visual Quality title in this section, that "An alternative was initially considered...but was determined not possible based on a minimum timber harvest requirement of 110 MMBF." We believe a minimum amount of timber to be harvested should not be required before the planning process is complete and all the information has been considered. A certain amount may be targeted, but a decision should not be made until after comments have been reviewed through NEPA and the Record of Decision is being prepared. We suggest correcting this in the Final EIS.	The Revised DEIS includes alternatives with a wide range of volume.
73.58	Page 2-6, Goshawk. The Draft EIS states "An attempt to develop an action alternative(s) that exceeded interim guidelines was determined to not be cost effective." We suggest the Final EIS state what the reasons were for the Interdisciplinary Team to originally consider a 2,000-acre radius buffer around each discovered goshawk nest. The FWS has determined that the current interim goshawk guidelines are inadequate. We suggest the Final EIS include options to apply management practices that would meet the requirements of the NFMA.	If radii of 2,000 acres were required for each goshawk nest, the additional road costs to avoid these areas may result in the project costing more than the financial returns for some timber sales planned within the project area. In addition, the additional road mileage would result in increased sedimentation to creeks, and additional road impacts to ambulatory wildlife (including MIS species and moose), as well as increased forest fragmentation affecting neotropical migratory bird species and other edge sensitive species. The management practices identified in the EIS meet the requirements of the NFMA.
73.59	The Draft EIS further states that any action alternative would be modified once goshawk guidelines are finalized. Finalization of updated goshawk guidelines may take an extended period of time, possibly after this sale has been awarded and old-growth timber is cut, limiting opportunities to apply such guidelines. We believe this issue should be addressed in the Final EIS.	Forest Plan standards and guidelines for protecting goshawk nests have been incorporated into the alternatives.
73.60	This section also refers to Section 502(A) of the 1995 Rescission Bill (P.L. 104-19) directing "goshawk HCAs" not exceed 300 acres per active nest. As of September 30, 1995, this law no longer applies. We suggest this be corrected in the Final EIS.	This paragraph is deleted in the Revised DEIS.
73.61	Page 2-8, first paragraph under Alternative C. The Draft EIS states that this alternative "avoids the placement of harvest units near areas identified as supporting important salmonid fisheries" and avoids "disturbance to mountain goat travel between the two peaks." We suggest that in the Final EIS, all proposed alternatives avoid these resource impacts.	Each alternative has different effects to the resources. If all alternatives have identical effects to resources, then the variability among alternatives would be minimal which is not the objective of developing alternatives.
73.62	Pages 2-9, 2-13, 2-17, 2-21; Alternative maps. We suggest in the Final EIS these maps depict locations of streams, elevations, and retention areas, particularly the Alternative C map, since it has a fisheries and mountain goat emphasis.	Additional detail provided on 11 X 17 maps can obscure the overall map objective. A larger size map would be necessary to include topography, streams, old-growth habitat, etc.
73.63	Page 3-3, Table 3-2. It is very confusing when trying to calculate the total acreage of each forest volume class in the project area using the information presented in the Draft EIS. Table 3-2	The new Forest Plan uses volume class strata to characterize commercial forest.



## Responses to USFWS

73.64	defines each volume class (3 - 7) by MBF/acre. The paragraph below this table states that 85,693 acres are in volume classes 3 - 7. Table 3-3 shows 85,693 acres are commercial forest land. Assuming this is the same acreage and using the figures in Table 4-13 (page 4-34), which states that 80,979 acres is of volume classes 4 - 7, then 4,714 acres must be in volume class 3. Yet, Table 3-3 on page 3-3 and Table 3-8 on page 3-14 shows only 96 acres in volume class 3. We suggest the Final EIS plainly show how many acres are in each volume class in the project area. (See a related comment for Page 4-34, Table 4-13 below.)		The major problem with the table mentioned came from rounding to ensure a 100 percent total. Because of Forest Plan allocations that protect 1000-foot buffers around shorelines, beach fringe is not discussed in the Revised DEIS.
73.65	Page 3-14, Beach Fringe and Page 3-15, Scrub. These two paragraphs state that these habitats comprise 2 percent of the project area, yet Table 3-8 shows 3 percent. This is a small percentage, but a 50 percent difference. We suggest the figures in the Final EIS should be consistent.		A map similar to your request was developed on a considerably larger scale. The larger map was brought to scoping meetings, subsistence testimony meetings, and open houses for this project. Refer to the response to comment 73.63 regarding volume classes.
73.66	Page 3-17, Wildlife Corridors. We suggest the Final EIS include a map showing locations of the different Volume Class forest stands and the wildlife travel corridors.		It was determined not to be cost effective to print 13 color maps in the Revised DEIS. These maps have been provided to the USFWS and ADF&G who have been the only agencies who have requested this material.
73.67	Page 3-18, Management Indicator Species. In the Final EIS, we suggest this section include wildlife habitat maps, since the Wildlife Resource Inventory Report containing these maps is not easily obtained for review.		This typing error has been corrected.
73.68	Page 3-35, paragraph 2, second sentence. The scientific name for the Aleutian shield fern is misspelled and should be corrected in the Final EIS. It should be <i>Polystichum alagicum</i> .		Refer to the response to comment 73.6.
73.69	Page 3-35, paragraph 2, third sentence. The definition for Category 2 species is not complete. Also the term "Category 2" should be changed to "Species of Concern." The definition for Species of Concern is "taxa for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals at this time." We suggest the Final EIS be corrected.		No units east of Sandborn Canal are included in the Revised DEIS.
73.70	Page 3-37, Northern Goshawk. There were goshawk responses to broadcasts calls in harvest units 398126 and 398120 east of Sanborne Canal. To obtain nest stand locations, this area needs further investigation than what has been indicated in the Draft EIS and the Biological Evaluation. Without this information, important goshawk habitat may be lost to timber harvest. We believe this should be addressed in the Final EIS.		This has been revised in the Revised DEIS.
73.71	Page 3-37 and 3-38. Trumpeter swans and ospreys are listed under the "Category 2" section in the Draft EIS. In the Final EIS, we suggest these species be listed under a separate title: "Sensitive Species."		This information has been added to the Revised DEIS.
73.72	The FWS conducted aerial surveys of the Port Houghton area during late February 1996 and observed three trumpeter swans close to the mouth of Sanborne Canal.		A description of how monitoring is used by the Forest Service is provided in Appendix E. Basically, any information obtained from monitoring wildlife will be used to either confirm that species are not adversely affected by the harvest or used to identify additional protective measures when needed.



Responses to USFWS

73.73	<p>Page 4-4, Table 4-3. The percentages of acres listed in this table under "Volume Class 7 to be harvested" are misleading. The table shows "0%" Volume Class 7 is proposed for harvest under Alternative B when in fact about 5 percent of the total acres of Volume Class 7 present in the project area are proposed for harvest. We suggest this be corrected in the Final EIS.</p>	73.73	<p>The percentages shown in the table were correct, but we agree, they appeared misleading. Discussions of volume classes have been substituted with discussions of volume strata.</p>
73.74	<p>Page 4-12, para. 2. The Draft EIS states that two log-entry systems are being considered for each LTF site: the low-angle slide and the bulkhead. We suggest the installation whichever system requires the least amount of fill at each site, and that this difference be discussed in the Final EIS.</p>	73.74	<p>Fill differences between the two log-entry systems are discussed in Section 4.2.1.1 of the Revised DEIS. Differences are insignificant (less than 0.1 acre) and are not considered to be the overriding factor in selecting the preferred method.</p>
73.75	<p>Page 4-15, Table 4-9. The information in this table could be misleading. Though the Draft EIS states that no water current data is available and that the bark deposition and dispersion in this table are estimates, it should be further emphasize that bark accumulation is dependent on the geophysical aspects of each site. This includes such things as gradient, currents, deposit of silt, and logging operations. We suggest site specific analyses be conducted for each LTF to determine the total area of impact, and the results thereof included in the Final EIS. Information such as percent coverage of bark accumulation and bark thickness, bathymetrics, substrate type, water current and flushing characteristics, biological productivity, type and quantity of other debris (i.e., cables) present should be included.</p>	73.75	<p>The most information that could be obtained at the site concerning bathymetry, substrate type, flushing characteristics, and biological productivity was recorded during 1994 field surveys. Bark accumulation and thickness and debris data would be recorded during monitoring. This latter information cannot be obtained until the LTF is in operation.</p>
73.76	<p>Page 4-17, para. 4. In December 1994 the FWS reported seeing twelve Stellar sea lions on the rocks and in the water just north of the North Arm LTF site (FWS, 1994, unpublished dive report). We suggest this should be reflected in the Final EIS.</p>	73.76	<p>This information has been added to the Revised DEIS.</p>
73.77	<p>Page 4-18, Water Chemistry. The Draft EIS states, "No chemical effects to fauna are expected from the proposed harvest. Adequate tidal flushing should preclude high concentrations of leachates from developing in the project area." There are insufficient data to supporting such conclusions, as the Draft EIS states on page 4-15 that no water current data are available for Port Houghton. We suggest this be corrected in the Final EIS.</p>	73.77	<p>From visual observations in Port Houghton, adequate tidal flushing is believed to occur in the area based on visual surveys conducted by marine biologists. The 1994 field investigation report prepared by the USFWS for the LTF sites also stated that there was physical evidence that flushing does occur at the three LTF sites.</p>
73.78	<p>Page 4-23, Wildlife Habitats. We believe the Final EIS should include a discussion and analysis of the long-term impacts that clearcutting would have on wildlife during the 25-30 years after cutting when the forest canopy closes and blocks out sunlight. This condition marks a period of 30-150 years in which wildlife species use of the forest is minimal due to a lack of understory. Sidle (1985) found that species richness can be greatly influenced by timber harvesting. Numbers of old-growth dependent species decline following timber harvesting. As vegetation evolves through the early successional stages species diversity increases. However, as understory vegetation is lost due to canopy closure species richness decreases.</p>	73.78	<p>Refer to additional information on long-term impacts to wildlife from clearcutting provided in Section 4.3. of the Revised DEIS.</p>
73.79	<p>Page 4-26, paragraph 1. The Draft EIS mentions a recent land exchange between the USFS and Goldbelt, Inc., but does not state if this land exchange is depicted on the EIS maps or if it has been considered during the project effects analyses. We suggest this be corrected in the Final EIS.</p>	73.79	<p>Refer to revisions to Section 1.6 of the Revised DEIS for information on the Goldbelt, Inc. land exchange.</p>



73.80	There is no evidence that a goat travel corridor exists between the two peaks. Regardless, the range of alternatives considers the concerns about mountain goats and several alternatives include mitigation measures to minimize the potential effects of roads on mountain goat migration between the two peaks.
73.81	Refer to response to 73.63.
73.82	Refer to additional information in Section 4.3 of the Revised DEIS for information on old-growth blocks.
73.83	Refer to the changes made in this paragraph.
73.84	The objective of this table was to illustrate that wildlife use different patch sizes. The marten was moved to patch sizes from 1,000 to 5,000 acres. A footnote was added to this table to address your concern.

DEIS Public Comments

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Port Houghton/Cape Fanshaw EIS

Page 4-26, paragraph 2. The Draft EIS states that proposed Road 6130, which occurs in all action alternatives, would transverse directly across a mountain goat travel corridor between Jamestown Peak and Dahlgren Peak. We suggest that the Final EIS have none of the alternatives interfere with this travel corridor since it may be important for mountain goat population viability in this area. The mountain goat population may be an important prey species for the wolf population in this area since wildlife surveys have indicated that the deer population is low in this area.

73.80

Page 4-34, Table 4-13. This table states that there are 80,979 acres in volume class 4 - 7, yet Table 3-8 (page 3-14) gives the same amount (80,979 acres) for volume classes 3 - 7. If the 96 acres of volume class 3 is subtracted from 80,979, the total acreage for volume classes 4 - 7 would be 80,883. This discrepancy should be corrected in the Final EIS.

73.81

Table 4-13 states that 51,008 acres are in volume class 5 - 8. We suggest the Final EIS define "volume class 8." Assuming that the Total Area of 51,008 acres of "volume classes 5 - 8" for Alternative A in Table 4-13 is meant to be "volume classes 5 - 7", then volume class 4 should equal 29,875 (80883 - 51,008 = 29,875). However, Table 3-8 states that there are 33,206 acres of volume class 4. We suggest correcting this in the Final EIS.

Totals of each volume class in the project area should be presented plainly when showing the amounts of wildlife habitat in the area in the Final EIS. All forest stands, not just suitable available timber, should be included in these figures, we believe, so that they can be used to assess wildlife habitat. Wildlife do not use just suitable available timber stands. We suggest the Final EIS clearly state the total acreage of each forest volume class in the project area, preferably in chart form.

73.82

Page 4-34 and 4-35. According to Table 4-13, 40 percent (20,408 acres) of the existing volume classes 5- 7 is forest interior and any action alternative would reduce the amount of old growth interior forest to 30 percent of the existing old growth forest. We believe the Final EIS should specifically state this, and that old growth blocks would be reduced to half their current sizes.

73.83

Page 4-35, paragraph 3. Old-growth forest patches greater than 100 acres in size are not necessarily considered "large patches." This term may be misunderstood. Using the interagency VPOP Committees' criteria, large forest patches greater than or equal to 40,000 acres are considered "large" patches. Old growth patches any smaller would be considered too small for the population viability of some species. We suggest this be addressed in the Final EIS.

73.84

Page 4-37, Table 4-14. This table is misleading. It infers that the old growth patch sizes listed on the left are large enough to contain the home ranges of the wildlife species listed on the right. Male marten home ranges have been found to be as large as 4,718.46 acres with a median size of 1,358.7 acres (Flynn 1994). This is 2.7 to 13.59 times larger than the 100 - 500 acres listed as utilized by martens in the table. Martens may be found in patch sizes smaller than 100 acres, but that does not mean that it provides year round marten habitat requirements.



Responses to USFWS

73.85	<p>Titus (1994) found the size of 16 radio-tagged goshawk home ranges in southeast Alaska in 1992-93 varied from 1,800 ac. to 47,955 ac. Female goshawk home range sizes varied from 675 to 275,300 acres. This disparity of use areas sizes has such a large variance that statistical characterization of a typical use area may not be appropriate in this context. The 10,000 acres listed for goshawks in the table may accommodate some of the goshawks, but home range sizes depend on habitat conditions, and are not uniform extent.</p> <p>The patch sizes listed in Table 4-14 may be too small for some of the bird species, such as the brown creeper, when considering edge effects. This table is erroneous and irrelevant to the needs of wildlife species and we suggest not using it in the Final EIS.</p>
73.86	<p>Page 4-37, paragraph 1. The word "martin" is misspelled, it should be "marten."</p> <p>Page 4-38, Habitat Preservation and Wildlife Retention. This section is too vague without maps depicting the location of the habitat retention areas. The Draft EIS gives only the acres of retention in each Value Comparison Unit but does not give the total size of each retention area. We suggest this be corrected in the Final EIS, and that it should also include a map showing old-growth forest interior only (old-growth blocks minus forest edge).</p>
73.87	<p>Page 4-41 and 4-42, Cumulative Effects. We believe the past timber harvests and associated impacts to streams on the adjacent Goldbelt, Inc., lands should be included in the wildlife effects analyses in the Final EIS. It is likely these impacts have affected the wildlife populations and should be included as part of the cumulative effects in the project area.</p>
73.88	<p>Page 4-44, Goshawks. The Draft EIS states that an interim nest protection zone of up to 300 acres for active nests may be maintained, citing the Rescission Bill 1995. We do not know of any scientific biological information supporting the goshawk provisions in the Rescission Bill. We suggest this be corrected in the Final EIS.</p>
73.89	<p>Index. Some of the page numbers in the Index are incorrect. We suggest the Index of the Final EIS be reviewed and corrected.</p>
73.90	<p>Appendix A, page A-1. The Draft EIS presents advantages for clearcutting, but fails to present advantages for alternatives to clearcutting. We believe the Final EIS should present information on all harvest methods equally, and consider more use of these alternative methods in the project.</p>
73.91	<p>Appendix E, page E-3. The Draft EIS states that BMPs of importance are described at the end of the section, but these appear to be missing. We suggest this be corrected in the Final EIS.</p>

73.85	This word has been corrected.
73.86	The Forest Plan replaced the retention area concept with the old-growth forest reserve concept. As a result, no further detail is being provided on retention areas. Additional information is being provided on old-growth forest reserves and Old-Growth Habitat LUDs. Refer to changes in Section 4.3.
73.87	Goldbelt Inc. lands have been considered as clearcut habitat for existing conditions. Therefore, all quantitative analyses conducted for this EIS assumes that forests no longer occur on Goldbelt Inc. lands.
73.88	This paragraph has been eliminated.
73.89	The index has been corrected.
73.90	Alternative silviculture is discussed following clearcutting in Appendix A.
73.91	This sentence has been omitted in Appendix E.



74.1

Comment noted.

March 26, 1996

Scott Forman  
PO Box 4435  
Bellingham, WA 98227

Pam Gunther  
Parametrix, Inc.  
5808 Lake Washington Blvd., NE  
Suite 200  
Kirkland, WA 98033

Dear Ms. Gunther,

74.1

I encourage you to consider all of the variables involved in the proposed Port Houghton/Cape Fanshaw Timber Sale. Please make an informed decision and don't disregard the long-term health, beauty and viability of this area.

Your decision affects us all...

Kind Regards,



Scott Forman



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# **Appendix E**

## **Monitoring Plan**



# Exhibition

with poster

by [illegible]



# Appendix E

## Monitoring Plan

### Monitoring Plan in Association with Adaptive Management

#### Forest Plan Monitoring

The National Forest Management Act requires that National Forests monitor and evaluate the implementation of their forest plans (36 CFR 219.11). This evaluation provides the public and the Forest Service with the information necessary to ensure responsive and efficient management of National Forests.

The Forest Service uses three types of monitoring: implementation, effectiveness, and validation monitoring. Implementation monitoring assesses whether or not the project was implemented as planned and is in compliance with the Forest Plan. It answers the question: Did we do what we said we would do? Effectiveness monitoring answers the question: Did the thing we said we would do accomplish what we expected it to? It is especially important for evaluating the effectiveness of mitigation measures. Validation monitoring is conducted to determine whether initial assumptions used to develop alternatives and estimate effects are correct. It answers the question: Is there a better way to accomplish the objectives and achieve the desired future condition?

#### Adaptive Management

In addition to the standard timber plan proposed for the project area, alternatives have incorporated the concept of adaptive management to provide information on effects of forest management to be used on future timber sales.

Adaptive management is defined as a sequence of planning, acting, monitoring, evaluating, and adjusting management actions (Hollings 1978; Walters 1986). Key to this concept is managing efforts as an experiment so that learning follows from the results of an action; then plans for future actions are adjusted based on the knowledge gained from the initial experiment. Adaptive management allows forest managers and scientists to work in concert, and recognize and adapt to changing goals, knowledge, technology, and resource conditions.

Adaptive management has emerged in natural resource management recently because of the need to integrate management and science in an operational context, the need to integrate resource goals and objectives, and the realization that new management goals are sometimes being applied before adequate scientific knowledge is available.



Several opportunities for adaptive management identified for the Port Houghton/Cape Fanshaw project area resulted from the desire to decrease impacts to natural resources while continuing to harvest timber. Also recognized was the need to define some impacts (both beneficial and detrimental) whose effects have not yet been quantitatively established. Selection of appropriate silvicultural treatments is a concern expressed both by the public and the interdisciplinary team because effects of harvest are interrelated with other resource concerns. For that reason, an adaptive management approach was integrated into the overall silvicultural evaluation process for the project area early in the 1994 field season. It is a core tenet of both the proposed silvicultural treatments and the proposed alternatives as designed.

The main focus of adaptive management has been through silvicultural prescriptions. Proposed harvest treatments are viewed as working hypotheses to be tested and evaluated during and after the treatments are carried out. Where possible, these working hypotheses are to be tested in the same area to reduce the variation due to large-scale environmental or site differences. For example, two or more silvicultural systems or methods may be prescribed within the same harvest unit to provide a direct comparison of effects. These opportunities for adaptive management do not necessarily rely on scientific experiments and rigorous data collection, but they present adaptive management in an operational context. Nevertheless, partnerships between managers and scientists are extremely important if the full benefits of the process are to be realized.

### **Project Adaptive Management Opportunities for Silvicultural Systems**

The adaptive management project opportunities for silvicultural systems include combinations of *clearcutting*, *clearcutting with reserves*, and *shelterwood with reserves* within harvest units. This allows for contrast of soil process and function, regeneration methods, species composition and control, wildlife habitats and species responses, windthrow effects, and economic costs.

Other adaptive management opportunities include prescribing a logging system that creates a substantial amount of soil disturbance in areas with potential for seeding of Sitka spruce and alder (refer to Appendix A). When feasible, other logging or silvicultural methods were incorporated in the same harvest unit. This prescription provides information on changes in site productivity, soil characteristics, timber production, and wildlife habitats.

When possible, action alternatives included group selection (tree harvesting in small groups of 2 acres or less) in visually sensitive areas. Visual quality would be evaluated following harvest for these areas *as well as in areas harvested by contrasting methods*. Resulting wildlife habitats, windthrow effects, and timber production would be evaluated in comparison with other methods.

Species in short supply would be planted. Some areas with Alaska yellow cedar and Sitka spruce are regenerating mostly to hemlock. Planting blocks within harvest units would be evaluated to contrast the results of planting versus not planting as a means of retaining scarce species in the new stand.



**Best Management Practices (BMP)**

BMPs are protection methods or measures designed to reduce or prevent water pollution and to minimize adverse impacts on water quality that are associated with a land-disturbing activity, such as timber harvest or road construction. BMPs are recognized by the Forest Service and the State as the primary mechanism for controlling nonpoint sources of pollution on National Forest System lands.

Through a Memorandum of Agreement (MOA) with the State of Alaska, the Forest Service is responsible for implementing BMPs and monitoring their effectiveness to assure compliance with the goals of the State’s Water Quality Standards and the Clean Water Act. Both implementation and effectiveness monitoring occur on an on-going basis. Monitoring consists of field visits to a random sample of units and roads by hydrologists, soil scientists, sale administrators, engineers, and other resource professionals. Costs are variable and funding is part of routine work.

For this project, BMP monitoring would focus on timber and transportation-related activities. Specific activities to be monitored would include timber unit design and layout, timber yarding practices, stream course protection measures (including buffer strip design and layout), road location and design, road drainage structures and erosion control measures, landslide mitigation measures, and LTF operation and maintenance.

**Implementation Monitoring**

**LTF Removal**

LTF sites would be monitored at the completion of harvest operations to ensure that site restoration has occurred in compliance with contract specifications.

**Eagle Nesting Habitat**

Objective:	To ensure Forest Service maintains minimum 330-foot buffers around eagle nest locations or minimizes impacts to nest locations with approved variances.
Desired Result:	Protect eagle nest locations.
Measurement:	During sale implementation activities, observe eagle activities in nests close to logging camps and major road crossings, especially where variances to 330-foot minimum buffers were negotiated.
Threshold:	Management activities encroach on 330-foot minimum buffers or on trees with approved variances.
Corrective Action:	If it appears eagle nesting is disrupted because of management activities, consult with the USFWS to resolve potential problem.
Responsible Staff:	Sale administrator and wildlife specialist.



Record of Results:	Daily diaries of sales administrators, and memos of wildlife specialists recording findings at nest sites.
Annual Cost:	Ongoing activity for sale administration. Site visits by wildlife specialists would cost an estimated \$4,000 per year during active logging operations.
FTE needs:	None

### **Visual Resources**

Objective:	To assure that unit design and mitigation measures were successful in meeting the visual quality objectives as specified.
Desired Result:	Apply mitigation measures of unit design and alternative silvicultural methods to reduce visual contrast created by logging operations. Design and locate LTF facilities to minimize visual impacts.
Measurement:	Viewsheds photographed from established viewpoints and compared to inventory photographs, as well as visual simulations. To be monitored once, within 5 years after harvest.
Threshold:	Viewshed alteration exceeds impacts shown in visual simulations by ten percent.
Responsible Staff:	Landscape architect.
Record of Results:	Photographs from photopoints and written record.
Annual Cost:	Ongoing business, no additional funding needed.
Personnel Needs:	None

### **Beach Fringe, Estuary Fringe, and Riparian Habitat**

Objective:	Avoid extending harvest units into beach or estuary fringe habitat. Ensure that travel corridors are protected.
Desired Result:	Avoid loss of wildlife habitat or other effects beyond the parameters of the preferred alternative.
Measurement:	Unit cards identify unit locations, noting if they are adjacent to protected travel corridors, estuaries, or beach fringes. If so noted, the units must not be enlarged in a manner that adversely affects these wildlife features. Twenty percent of units laid out each year will be spot-checked for conformance with unit card design guides.



Threshold:	None of the spot-checked units deviate from wildlife concerns stated on cards.
Corrective Action:	If landing or boundary locations are not feasible, the layout employee will contact a wildlife specialist and resolve desired changes at the time of layout. If still unresolved, bring to the District Ranger.
Responsible Staff:	Timber layout and sale administration employees.
Record of Results:	As-laid-out unit cards, as part of the pre-sale files.
Annual Cost:	Ongoing business; no additional funding needed.
Personnel Needs:	None

### **Erosion Control Measures**

Objective:	To minimize erosion and sedimentation in timber harvest and road construction and maintenance activities.
Desired Result:	Road survey and design standards capture the stated intent of the EIS, which is to minimize the risk of soil erosion and sedimentation to streams (BMPs 13.13, 13.16, 13.17, 14.5, 14.11, 14.16, 14.17, 14.18, 14.20, 14.22, and 14.26).
Measurement:	Engineering representatives and road designers will review roads during and following contract operations, assisted by the soil scientist, as needed. Periodic survey following close of operations will be scheduled by the soil scientist.
Threshold:	Erosion control methods in place 90 percent of the time.
Corrective Action:	Correct designs as needed in the pre-implementation stages. During sale operations, contractor will implement changes specified in design guidelines if designs are not in compliance.
Responsible Staff:	Engineering staff and soils staff (post-harvest).
Record of Results:	Daily diaries of engineering representative; following sale operations, results recorded by soil scientist in follow-up reviews.
Annual Cost:	Ongoing business; no additional funding needed.
Personnel Needs:	0.1 FTE



### **Stream Buffers for Tongass Timber Reform Act**

Objective:	To ensure compliance with TTRA.
Desired Result:	Ensure that minimum 100-foot buffers are maintained to protect water quality and stream habitat for all Class I streams and Class II streams that flow directly into Class I streams near timber harvest units (BMPs 12.6, 12.7, and 13.15).
Measurement:	Spot-check 20 percent of all units near anadromous fish streams for compliance with TTRA. Field verification prior to timber harvest.
Threshold:	Minimum 100-foot buffer.
Corrective Action:	Postpone implementation until minimum buffer widths are verified.
Responsible Staff:	Fisheries specialist and timber layout and sale administration employees.
Record of Results:	Sale layout cards for units and daily diaries of sale administrators.
Annual Cost:	Ongoing business; no additional funding needed.
Personnel Needs:	None

### **Effectiveness Monitoring**

#### **Timber Restocking**

Objective:	To ensure that restocking occurs within minimum timeframes stated in National Forest Management Act (NFMA).
Desired Result:	Adequately restocked timber stands.
Measurement:	Stocking surveys at the first, third, or fourth year.
Evaluation:	Determination that stocking is adequate. Corrective action (i.e., planting) if natural regeneration is inadequate.
Responsible Staff:	Juneau and Petersburg Ranger District.
Record of Results:	Annual restocking report (NFMA).
Annual Cost:	Ongoing business. No additional funding needed.
Personnel Needs:	None



## **Site Utilization**

Objective:	To ensure timber growth on highly productive sites is managed for future fiber production.
Desired Result:	On high-productivity site index sites, thin stands aged 15 to 20 years.
Measurement:	Conduct surveys of stands aged 10 to 12 years to identify and plan future thinning activities.
Evaluation:	Assess and document survey findings. Prioritize and program the best stands for thinning when they are 15 to 20 years old.
Responsible Staff:	Juneau and Petersburg Ranger District.
Record of Results:	Annual report of overall thinning and precommercial thinning (Supervisor's Office).
Annual Cost:	Ongoing business. No additional funding needed.
Personnel Needs:	None

## **Road Erosion Sources and Control Measures**

Objective:	To determine road erosion sources and effectiveness of sediment control measures.
Desired Result:	BMPs and road design are effective in controlling erosion from roads.
Measurement:	Investigation should be similar to the study by Doug Swanson and the Forestry Sciences Laboratory on Hoonah Ranger District and include sampling of two different site conditions over a one- to two-year period.
Evaluation:	Evaluate effectiveness of erosion control measures and note recommendations for improving BMPs and road designs. Develop mitigation action plan if needed.
Responsible Staff:	District fish and wildlife staff with assistance from the area hydrologist.
Annual Cost:	Ongoing business; no additional funding needed.
Personnel Needs:	0.3 FTE



## **Road Slope Stabilization**

Objective:	To determine whether road designs and construction have met the intent of the EIS to reduce risk of mass failure.
Desired Result:	Design roads that minimize the potential for road-related mass failures during and after timber harvest (BMPs 14.7, 14.8, 14.12, and 14.20).
Measurement:	Engineering representatives and road designers will review roads during contract operations, assisted by the soil scientist or geotechnical engineer, as needed. Final plan-in-hand review will ensure compliance with road design standards. The survey of timber unit areas and roads five years following close of operations will be scheduled by a soil scientist or geotechnical engineer.
Threshold:	Less than ten percent variation between plans and implementation.
Corrective Action:	Correct designs as needed in the pre-implementation stages. During plan-in-hand review, contractor implements the changes specified in design if not in compliance.
Responsible Staff:	District Ranger (final approval).
Record of Results:	Road survey and designs, and memos noting plan-in-hand review or findings of soil scientist.
Annual Cost:	Ongoing business; no additional funding needed.
Personnel Needs:	0.2 FTE, a geotechnical engineer as needed.

## **LTF Bark Accumulation**

This monitoring would determine the size of the area affected by bark deposition and bark depth. If LTF sites are implemented, they would be surveyed by divers as required in applicable state and federal permits.



## **Northern Goshawk**

Objective:	Confirm that harvesting activities are not disturbing northern goshawks with known nests in the project area.
Desired Result:	Determine whether goshawks are able to tolerate and successfully breed in the project area with the ongoing timber harvest.
Measurement:	Confirm continued nesting activity and fledged young at known nest sites prior to, during, and following timber harvest.
Threshold:	Loss of adults or young.
Corrective Action:	If goshawks appear disturbed from the active timber harvest or do not appear to be successfully nesting, then harvest should be conducted outside the nesting season or avoided altogether, if necessary, in the vicinity of the nest.
Responsible Staff:	Chatham and Stikine Area wildlife biologists.
Record of Results:	Short reports for project files, regional wildlife biologists working with northern goshawks, USFWS, and ADF&G.
Annual Cost:	\$4,000
Personnel Needs:	0.2 FTE

## **Cultural Resource Identification**

Objective:	To ensure cultural resources are protected.
Desired Result:	Resolve conflicts between goal of protecting cultural resources and need for timber harvest, road construction, and LTF construction to conform to the National Historic Preservation Act as amended. Confirm that cultural resources are protected before operations begin.
Measurement:	Evaluate impacts on cultural resources discovered after the start of timber harvest, road building, or LTF construction.
Threshold:	Evidence of cultural materials discovered during operations.
Corrective Action:	Cultural resource specialist would ensure known sites are protected prior to implementing any land-disturbing activities. In the event of future discoveries, suspend activities until mitigation and protection measures are



designated jointly by cultural resources staff, State Historic Preservation Officer, the Advisory Council on Historic Preservation, and District Ranger.

Responsible Staff: Sale layout employees, engineering and road design employees, and field inspectors of timber sale operations. Cultural resource specialist is available for field inspection as needed.

Record of Results: New discoveries will be recorded in daily diaries of field inspectors. Cultural resource specialist will develop and maintain appropriate records for new discoveries brought to his or her attention.

Annual Cost: Ongoing business; no additional funding needed.

Personnel Needs: None

### **Cultural Resource Protection**

Objective: To protect known and newly discovered cultural resource sites from vandalism.

Desired Result: Protect cultural resource sites inside the project area from vandalism.

Measurement: Periodic visits to known sites to ensure that they are not disturbed.

Evaluation: In the event of a disturbance, notify Forest Service archaeologist, District Ranger, and appropriate law enforcement personnel.

Responsible Staff: Sale administrators, engineering representatives, and cultural resource specialists.

Record of Results: Normally none, unless a violation occurs.

Annual Cost: \$3,000

Personnel Needs: None

### **Post-Sale Road Use**

Objective: Determine whether RMOs for post-sale use are reflected by actual use, and determine effects of post-sale use on resources.

Desired Result:



Desired Result:	Use of road systems after harvesting conforms to guidelines. Effects of road use on resources do not exceed standards.
Measurement:	Random visits to road headings and over flights.
Threshold:	Determine if use is occurring, if RMOs are being met, and if vehicles are honoring road closures.
Corrective Action:	Construct additional barriers if road to be closed. Clean culverts if plugged and remove threatening debris at bridges on open roads.
Responsible Staff:	Juneau and Petersburg Ranger District staff and SO engineering.
Record of Results:	Memo documenting findings of site visits.
Annual Cost:	Ongoing business; no additional funding needed.
Personnel Needs:	None

## Validation Monitoring

### Alternative Silviculture

Objective:	To determine whether the two types of clearcuts and partial harvesting prescriptions, prescribed in this project for adaptive management, have been implemented and appear to be effective.
Desired Result:	The two types of clearcuts and partial cuts have been implemented and each type appears effective, to varying degrees, at maintaining green tree and snag densities and structure in the second-growth stand and at reducing the visual contrast between the clearcut and adjacent old growth.
Measurement:	Compare unit cards and silvicultural prescriptions with observations on the ground on 10 to 20 percent of the units. Prepare narrative description.
Evaluation:	Modify future unit prescriptions based on feedback obtained.
Responsible Staff:	Juneau and Petersburg Ranger District's staff and landscape architect.
Record of Results:	Memo documenting findings.
Annual Cost:	\$3,000



Desired Result:	Residual trees are still standing and remain windfirm. Adequate regeneration is occurring in harvested patches.
Measurement:	Document the effect of opening stand on the windfirmness of residual trees. Measure stocking and species composition in harvested patches at first, third, or fourth years, and at approximately year 10.
Evaluation:	Evaluate the effectiveness of group selection as a viable silvicultural prescription on a forest-wide basis. Determine whether stocking in groups is adequate. Prescribe planting if natural regeneration is inadequate.
Responsible Staff:	District silviculturist.
Record of Results:	Memos documenting findings of random visits.
Annual Cost:	\$2,500
Personnel Needs:	0.1 FTE



# **Appendix F**

## **Figures Supporting Subsistence**



# Appendix A

## Appendix A: Statistical Analysis

Table 1: Summary of Data



Figure F-1

# Reported Subsistence Deer Harvest in the Port Houghton/Cape Fanshaw Project Area

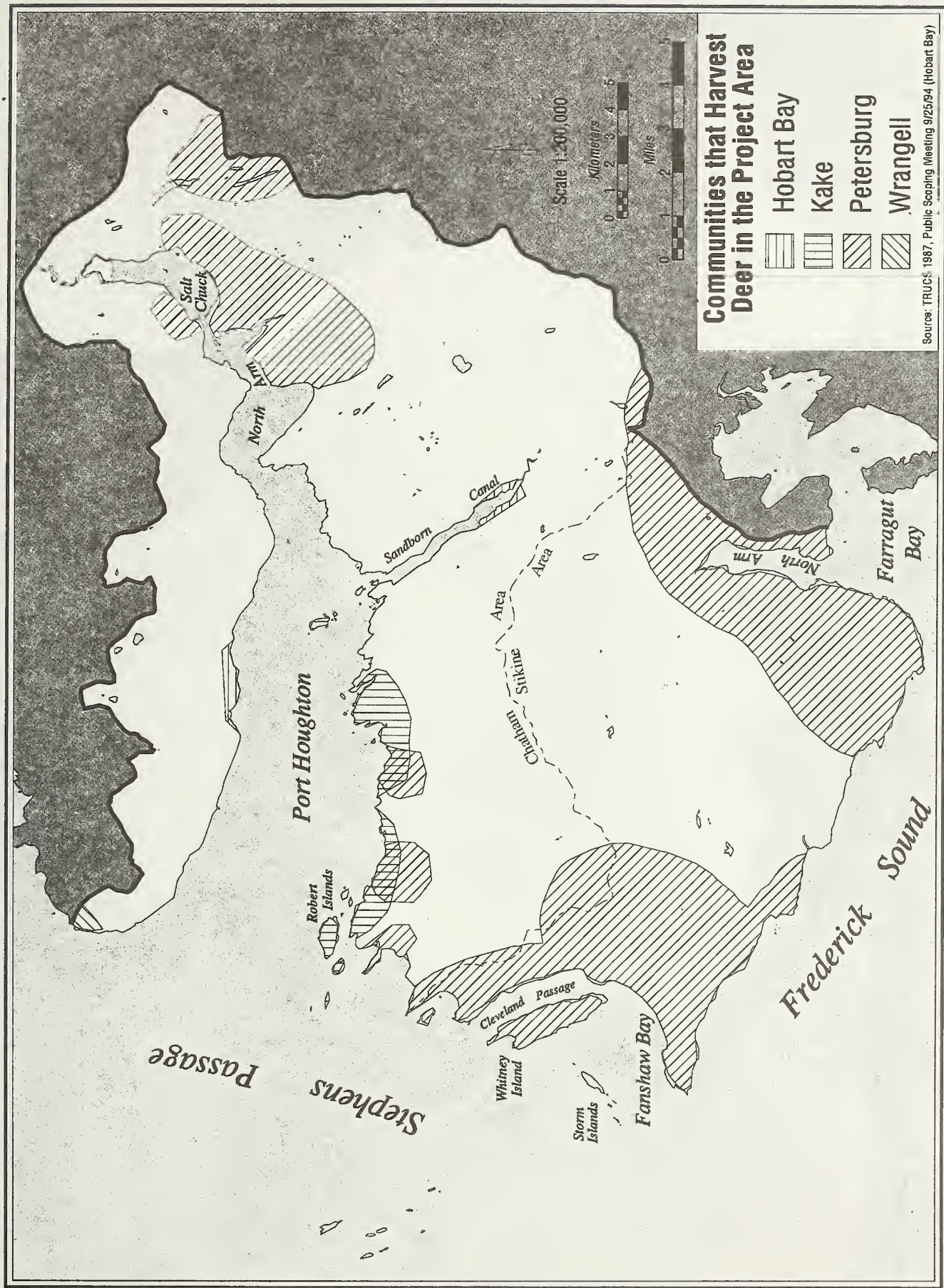




Figure F-2

# Percentage of Petersburg Households Reported Hunting Deer in the Port Houghton/Cape Fanshaw Project Area

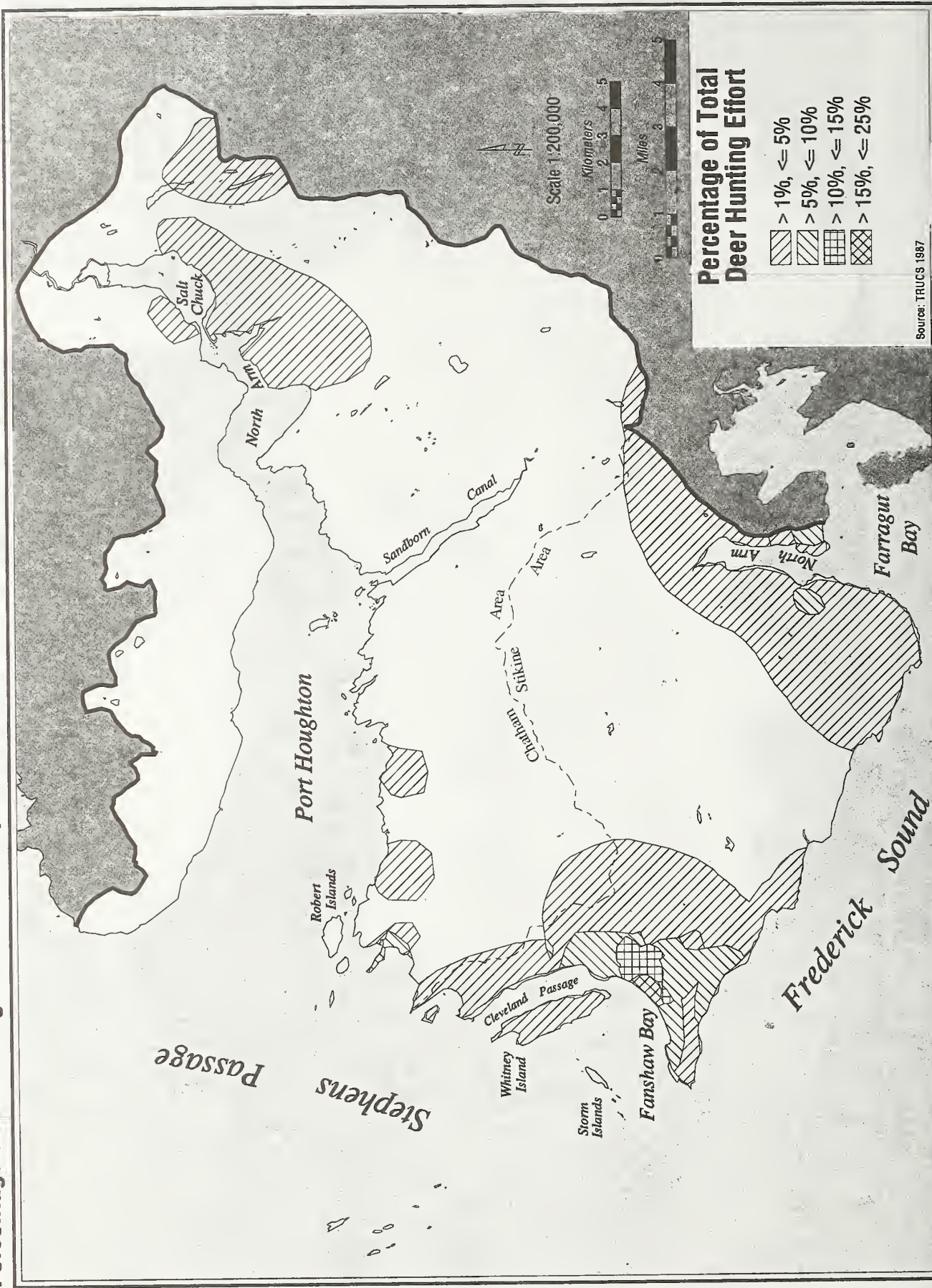
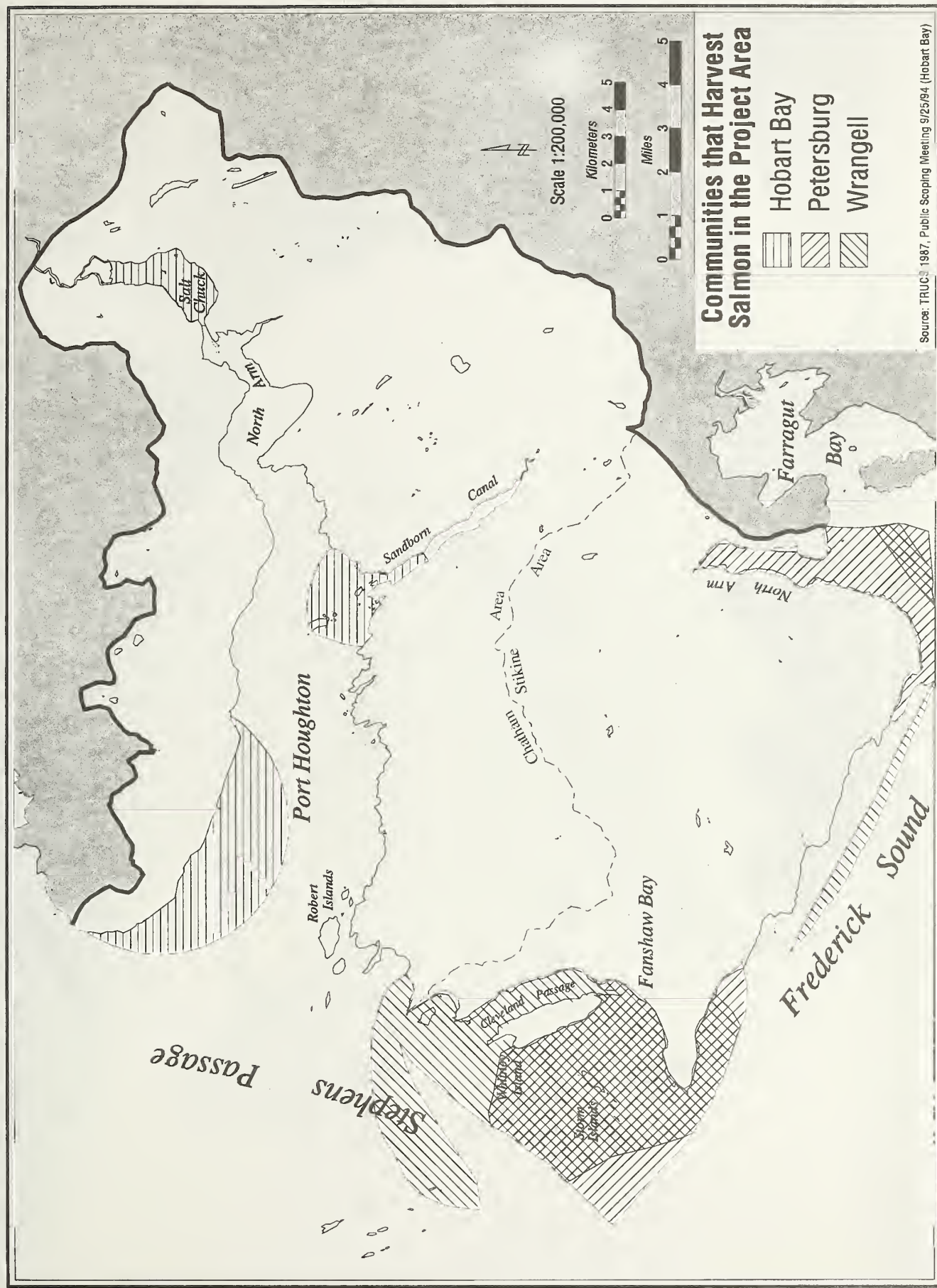




Figure F-3

# Reported Non-commercial Salmon Harvest in the Port Houghton/Cape Fanshaw Project Area



Source: TRUC, 1987, Public Scoping Meeting 9/25/94 (Hobart Bay)



Figure F-4

# Reported Subsistence Finfish Harvest in the Port Houghton/Cape Fanshaw Project Area

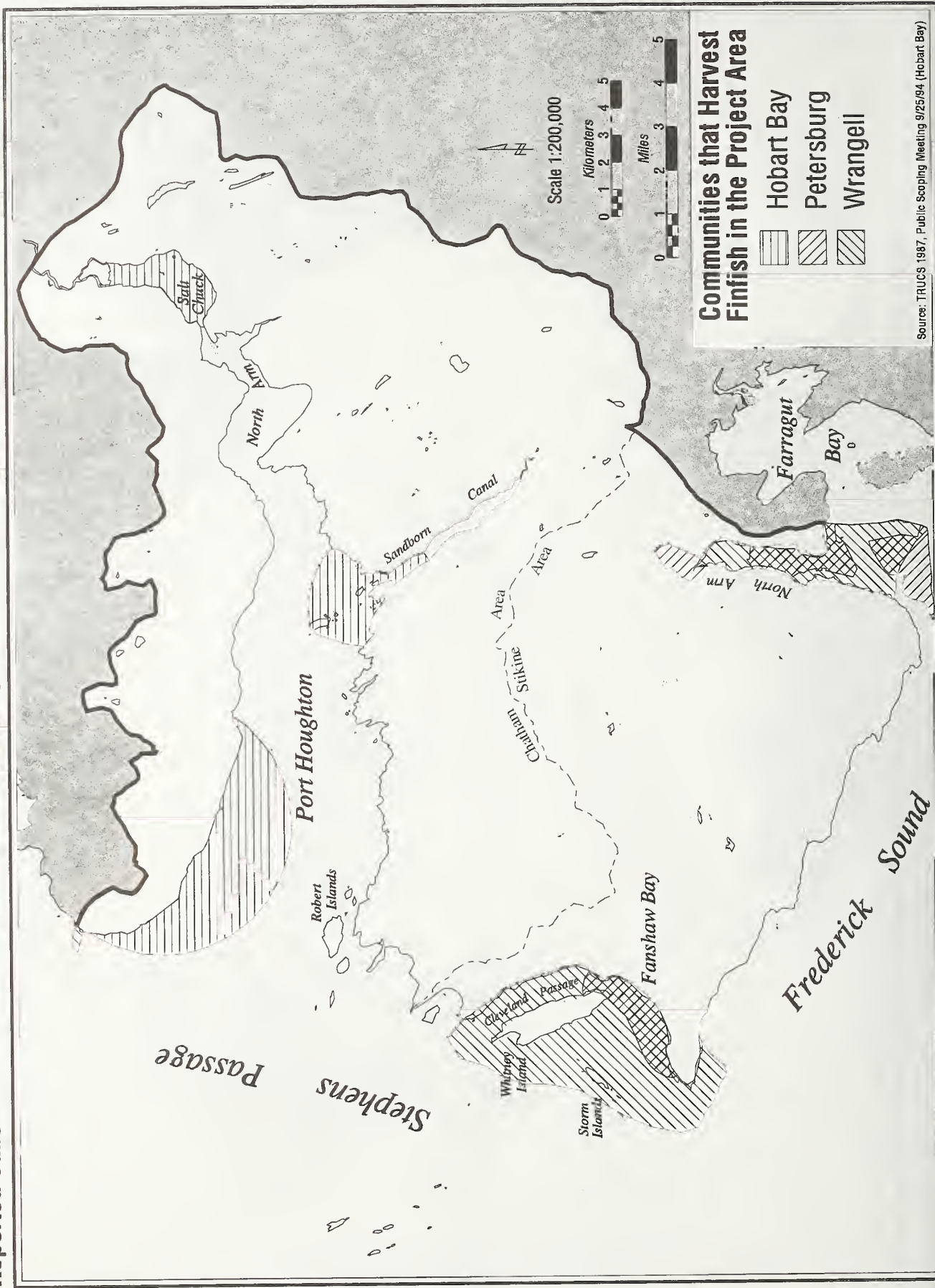




Figure F-5

# Reported Subsistence Shellfish Harvest in the Port Houghton/Cape Fanshaw Project Area



Source: TRUCS 1987



Figure F-6

# Reported Subsistence Waterfowl Hunting in the Port Houghton/Cape Fanshaw Project Area

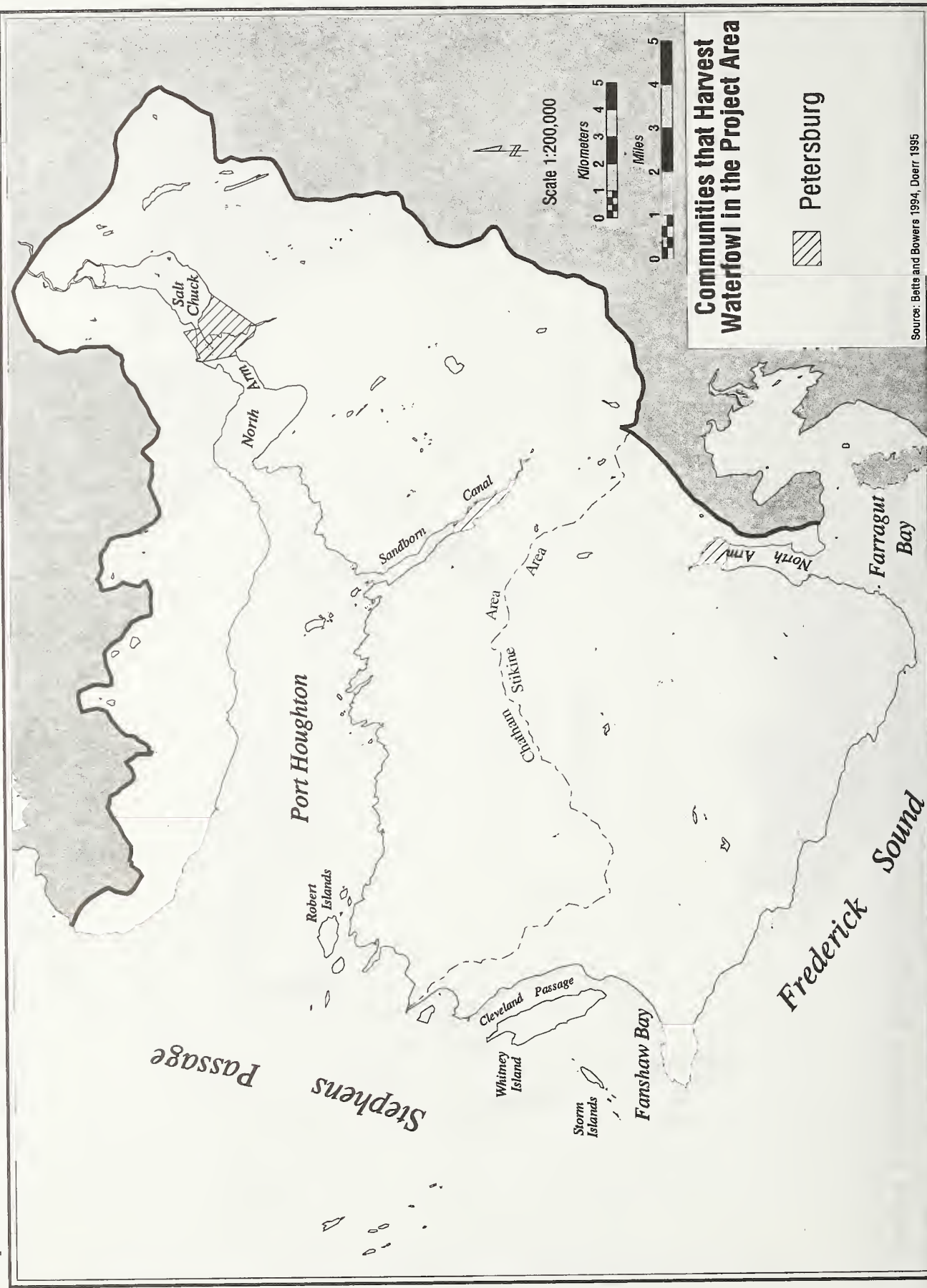
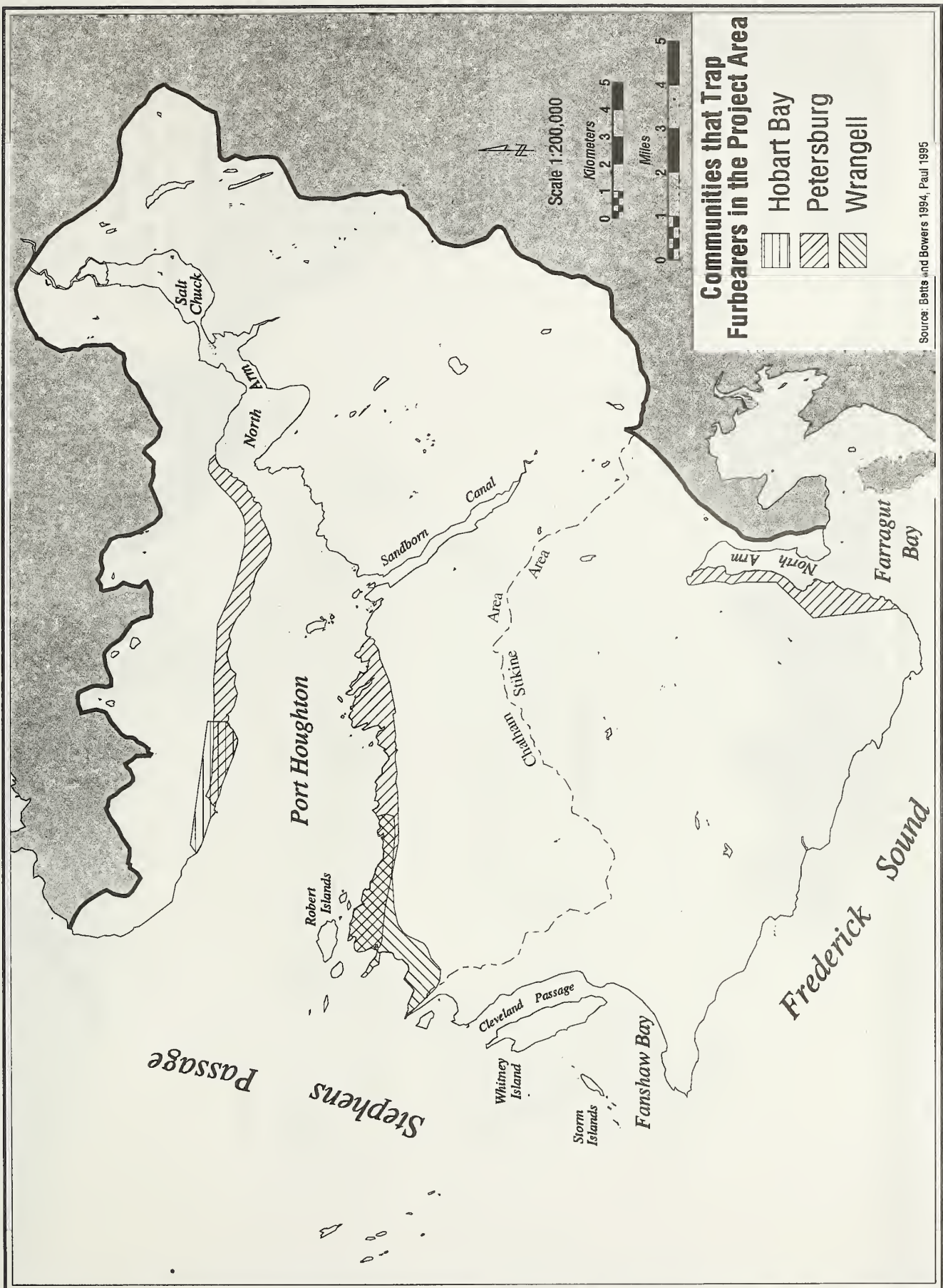




Figure F-7

Reported Furbearer Trapping in the Port Houghton/Cape Fanshaw Project Area



Source: Betts and Bowers 1994, Paul 1995



Figure F-8

# Reported Bear and Mountain Goat Hunting in the Port Houghton/Cape Fanshaw Project Area

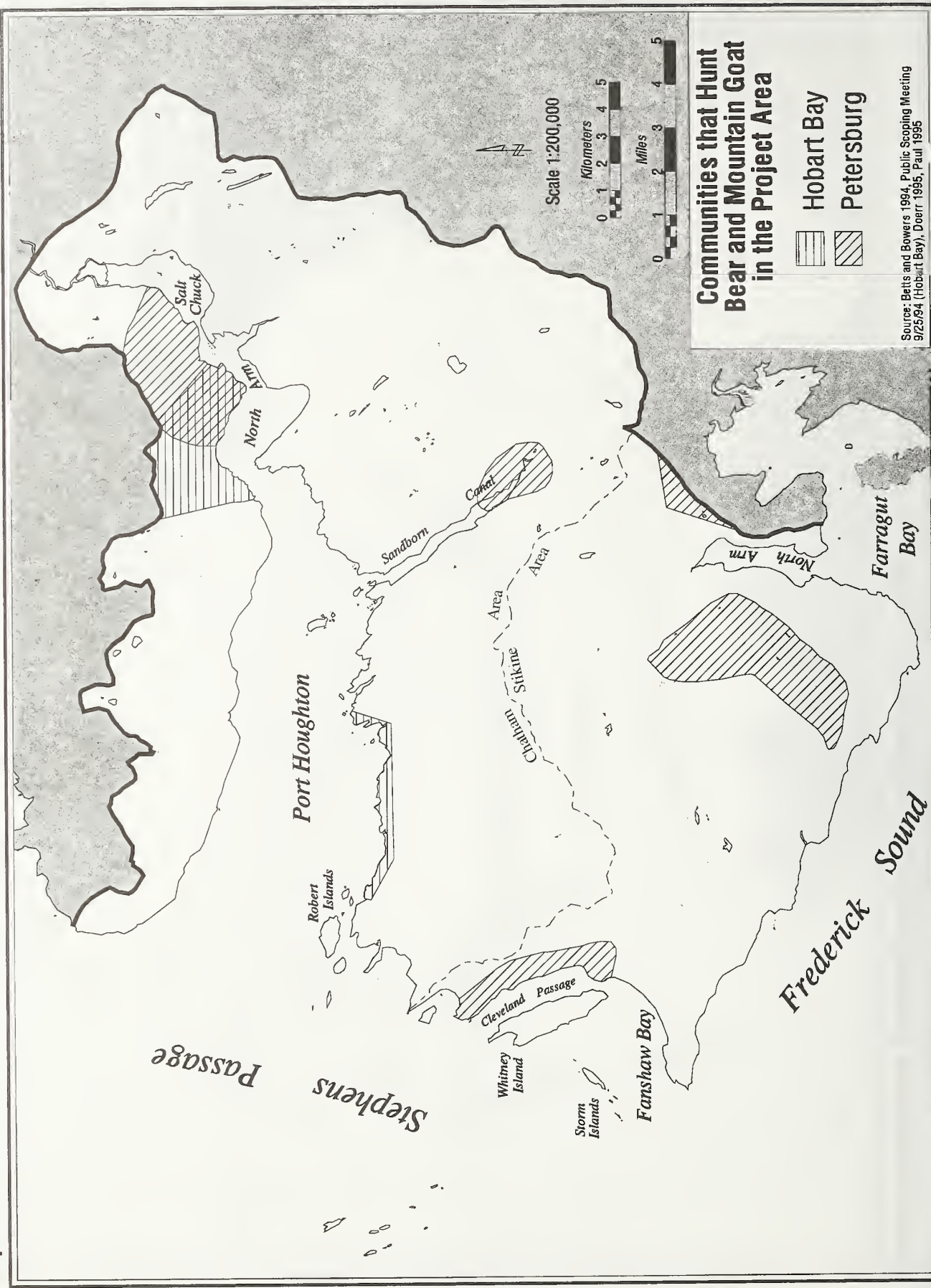




Figure F-9

Reported Harbor Seal Harvest in the Port Houghton/Cape Fanshaw Project Area

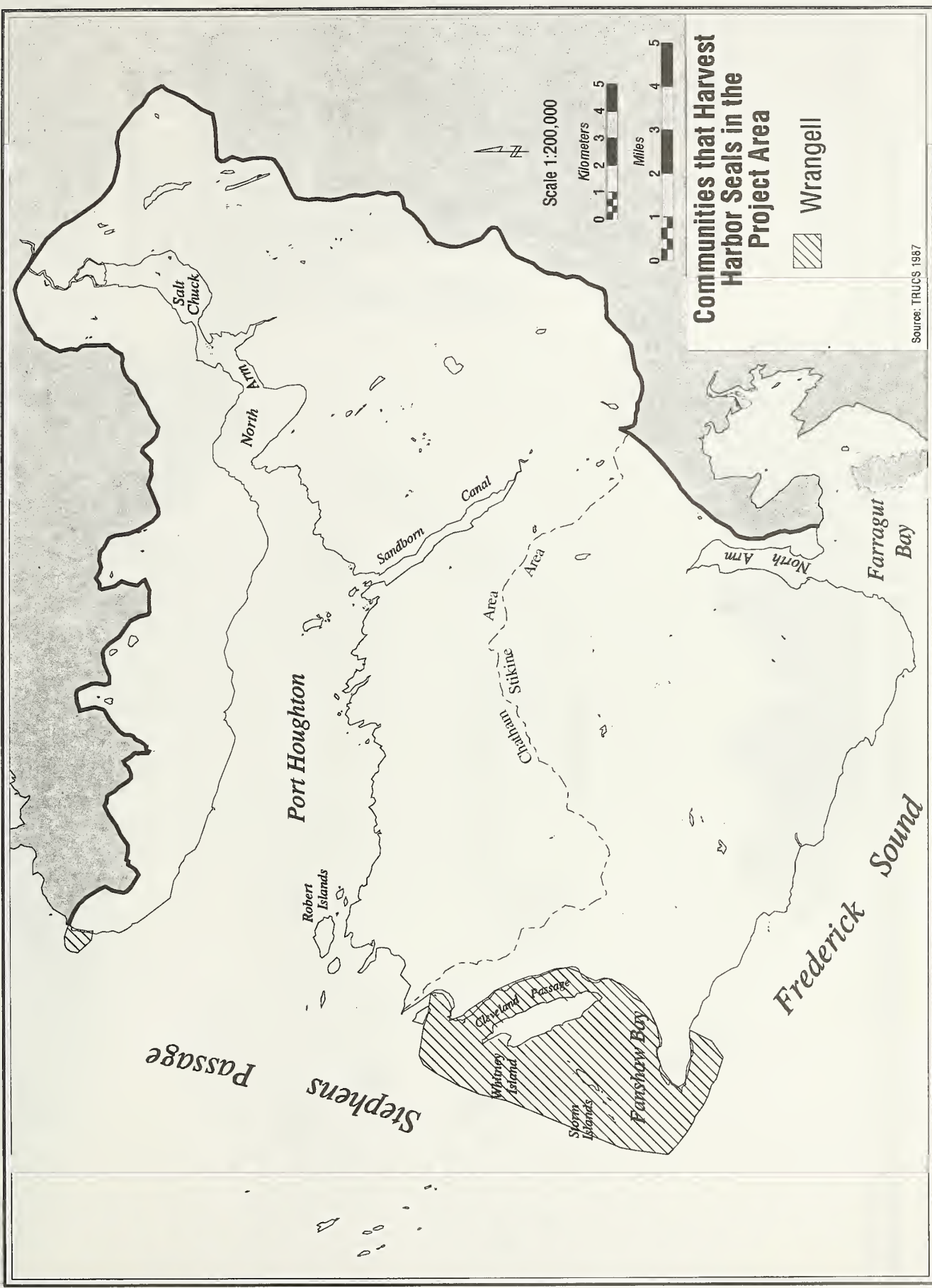
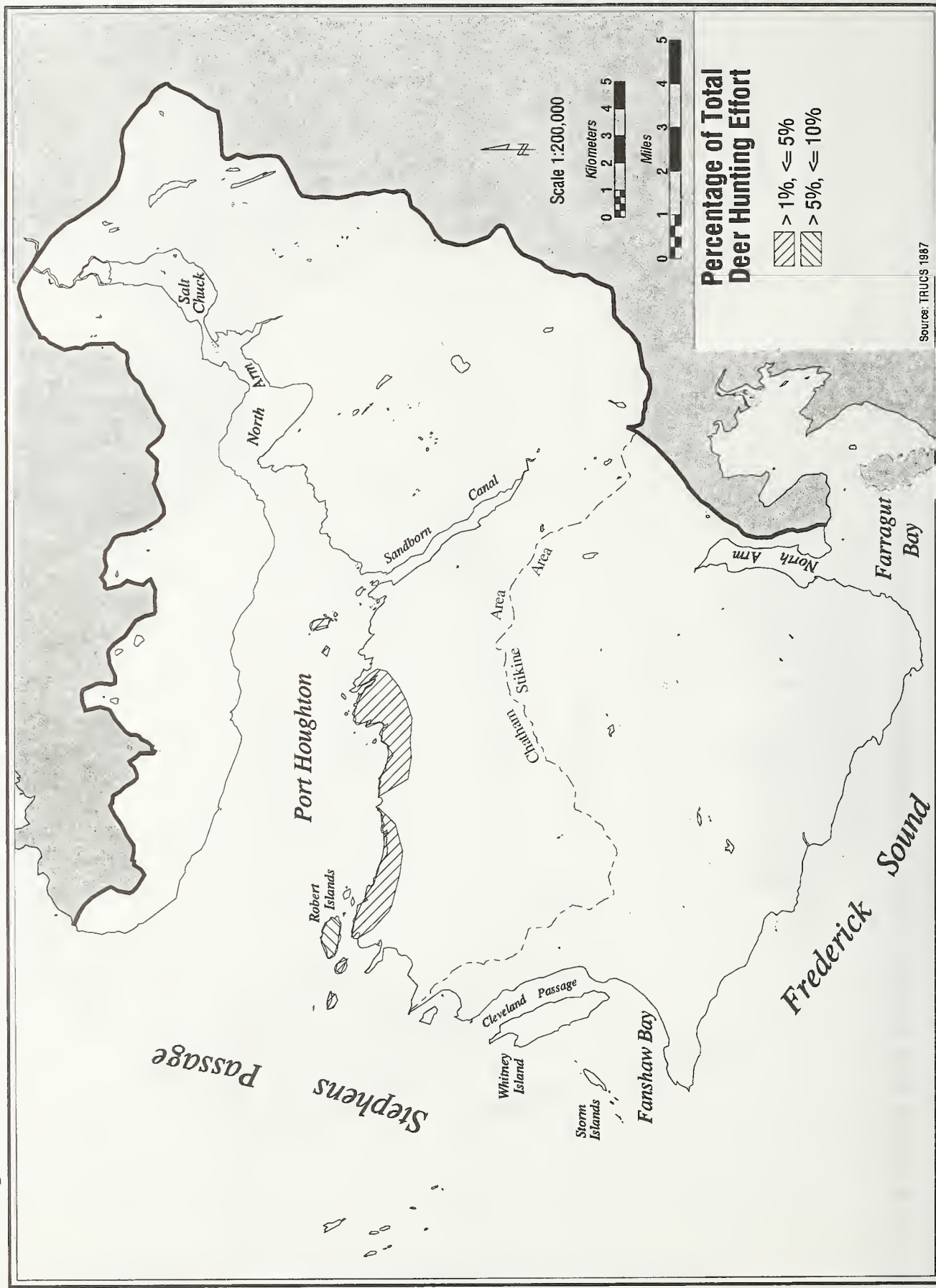




Figure F-10

# Percentage of Kake Households Reported Hunting Deer in the Port Houghton/Cape Fanshaw Project Area



Source: TRUCS 1987



# **Appendix G**

## **Subsistence Hearing Transcripts**







**PORT HOUGHTON/CAPE FANSHAW TIMBER SALE  
PROJECT  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
SUBSISTENCE HEARING  
MARCH 4, 1996  
HOBART BAY, ALASKA  
RECREATION HALL**

**Pam Gunther** - Good evening everyone. We have just completed the open house for the Port Houghton/Cape Fanshaw EIS, and are now beginning the ANILCA 810 subsistence hearing. My name is Pam Gunther. I've been delegated by the Forest Service as the hearing officer for this proceeding. I would like to welcome you here, and express our appreciation in your interest in this project.

Other individuals representing the project are Matthew Boyle, Subsistence Task Leader for the project. Matthew will be operating the tape recorder and taking notes in the event the tape recorder should fail. Both Matthew and I work for Parametrix, Inc., an environmental consulting firm whose primary responsibility has been to prepare both the DEIS and the FEIS.

We have worked in close association with the Forest Service on this project. Forest Service staff attending this hearing are Tom Parker from the Petersburg Ranger District, Dave Cottrell, from the Forest Service Stikine Supervisors Office, and Roger Burke, from the Juneau Ranger District. For the record, today is the fourth of March, nineteen ninety-six and the time is 6:00 p.m. This hearing is being held in Hobart Bay.

The purpose of this hearing is to receive your views and comments on the alternatives proposed for the project, and how these alternatives may affect your subsistence use of the project area.

Copies of the DEIS and DEIS summary are available this evening. Maps of the EIS are also present in this room. Publication of this meeting occurred in the Petersburg Pilot on February 1, 1996, Juneau Empire on February 2, 1996, and notices were placed in public areas for Kake, Wrangell, and Hobart Bay. Your comments will be used for the subsistence evaluation for the project. This hearing will occur for 60 minutes or until everyone has the opportunity to speak.

If you have not done so already, please sign in and clearly print your name, address, and who you are representing. When giving testimony, please speak clearly into the microphone so that your testimony can be recorded. Please spell your full name and your address for the record. Each individual will be limited to a maximum of 10 minutes of testimony. If you desire to provide additional information, you may speak again after everyone else has had the opportunity to speak.

During the hearing, questions by those giving testimony cannot be answered. We can speak directly to individuals following the hearing. Your testimony will be tape recorded for the Subsistence Hearing for the community of Hobart Bay. Written comment for the project will be accepted until March 26, 1996. To be part of the hearing transcript, written testimony will be accepted up



through, um, today. You may provide your written comment to Matthew tonight or you may send your written comment to myself or the Petersburg Supervisor's office at the addresses identified in the handouts provided today. We may now begin the testimony and start with the first person on the speaker list.

You can actually sign the list after you're done speaking.

**Anonymous** - Get the ball rolling, Mike, you're the leader here.

**Mike Graves** - I'm supposed to give my name?

**Matthew Boyle** - Yea.

**Mike Graves** - My name is Mike Graves. Uh, I live at Hobart Bay, P.O. Box HBH, Juneau, Alaska. Well, I'm in favor of this because, uh, I don't see where it's going to hurt the environment there, and we need more logging.

**Mark Geil** - I'm Mark Geil, Hobart Bay. I think the Port Houghton/ Cape Fanshaw sale would benefit the whole United States economy and producing jobs, and producing timber to build houses for people to live. Thank you (pause). I think Rayonier should say something.

**Jeff Brown** - Thank you for the invitation, Red. I'm Jeff Brown, I live here at Hobart Bay and, uh, I'd like to voice my opinion in support of the sale, to provide jobs for the community, uh, and resources for our country, and revenue for our country and uh, our experience here at Hobart is that, uh logging has not adversely affected the environment for the long term, and I gotta go home and feed the kids. So see you later (laughter).

**Anonymous** - Come on guys, now's your chance.

**Phil Pullins** - Let's draw this to a quick close. Uh, my name is Phil Pullins. I live at Hobart Bay. Also, same address as the other gentlemen. There's several, uh, people out here, and perhaps, if we were to, say, one hundred percent of the individuals here are in support, we could speed things up and we already have a list of the people here. Would that be possible? Just everybody show of hands (several people say "aye"). All those opposed? Well, perhaps the record could show then, that there was a hundred percent support here at the, at our meeting.

**Pam Gunther** - Is there anyone else who would like to speak up? Alright, then I guess that concludes the hearing. I'm glad, you're welcome to stay here, uh, for as long as you have questions, or are interested in the project. Alright, thank you.

**Matthew Boyle** - You're all set, Lee.

**Lee Greif** - Yeah, I'm Lee Greif, I live at Hobart Bay, and, ah, this proposed timber sale that we're talking about, Port Houghton, Fanshaw, I don't believe affects us as the primary subsistence users of this area, primarily, looking at the proposals the Forest Service has done seems to us, uh, areas that are, that are, uh, sensitive have been protected and, uh, primarily the subsistence



that we use in this particular area are fish anyway. Then if, uh, some of this ground is opened up somewhat, seems to me that there would be some good habitat for deer, maybe moose, which would increase our, uh, hab, or our, uh, subsistence use. So I'm, uh, in favor of this program and I think it will be beneficial to the people at Hobart Bay (applause).

**PORT HOUGHTON/CAPE FANSHAW TIMBER SALE  
PROJECT  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
SUBSISTENCE HEARING  
MARCH 5, 1996  
PETERSBURG, ALASKA  
ANB HALL**

**Patty Grantham** - We just completed the open house for the Port Houghton/Cape Fanshaw EIS, and we are now beginning the ANILCA 810 subsistence hearing. My name is Patty Grantham and I've been delegated by the Forest Service as Hearing Officer tonight for this proceeding and I'd like to welcome everybody here and appreciate the turnout. For the record, today is the fifth day of March 1996 and the time is 7:30, this hearing is being held in Petersburg, Alaska. The purpose of this hearing is to receive your views and comments on the alternatives proposed for the project, and how these alternatives may affect your subsistence use of the project area.

Copies of the DEIS and draft summary are available this evening. Maps of the EIS are also present in this room. Publication of this meeting occurred in the Petersburg Pilot on February 1, 1996, Juneau Empire on February 2, 1996, and notices were placed in public areas for Kake, Petersburg, Wrangell, and Hobart Bay. Your comments will be used for the subsistence evaluation for the project. This hearing will occur for two hours or until everyone has the opportunity to speak.

If you have not done so already, please sign in and clearly print your name, address, and who you are representing, if anyone. When giving testimony, please speak clearly into the microphone so that your testimony can be recorded. Please spell your full name and your address for the record. Each individual will be limited to a maximum of 10 minutes of testimony. If you desire to provide additional information, you may speak again after everyone else has had the chance to come up and speak.

During the hearing, questions by those giving testimony cannot be answered. We can speak directly to individuals following the hearing. You can talk to anyone that was introduced in this room earlier. Your testimony will be tape recorded for the Subsistence Hearing for the community of Petersburg. Written comment for the project will be accepted until March 26, 1996. To be part of the hearing transcript, written testimony will be accepted up through, um, today. You may provide your written comment to me, or to any of the other individuals I identified in this room or you may send your written comment to myself or the Petersburg Supervisor's office at the addresses identified in the handouts provided and I think that's, uh, P.O. Box 308, 309. So we're gonna go ahead and start the, uh, hearing and we're gonna work



down the speakers list, the first person on the list is Gerry Merrigan and, uh, Gerry if you'd come up and pull up a chair.

**A.1** **Gerry Merrigan** - My name is Gerry Merrigan. I live in Petersburg, most of the time. I'm a troller and, ah, I guess I'll do this instead of doing written comments, cause, it's easier. This is supposed to be just subsistence, but you said it's okay to have just general comments on this, uh, Cape Fanshaw's a area of commercial fishing interests for myself, being a troller, and I think commercial fishing and subsistence are gonna get real close together this summer, there's not gonna be a whole lot of difference. The, um, a lot of experimental openings are held in the Cape Fanshaw area and have just added Port Houghton in the last year because it's kind of a milling area for hatchery king salmon. Not just Alaska hatchery king salmon, but my tag codes show me it's, uh, Canadian king salmon as well and occasionally Snake River fish.

**A.2** We had this meeting about a year and a half ago, it was a pretty interesting meeting, meeting. The contractors for the EIS and the Forest Service and a lot of fishermen turned out and there're a lot of questions, and I think that most people think that logging and fishing can get along if it's done right, but coming into this meeting and finding out that the major suggestion we made wasn't even followed, kinda makes you suspect to figure out can it get along if you only look at what's there three months out of twelve. If you don't really have a baseline to see what's happening. There's a big ball of herring that roams around out there in the mouth of Houghton, and I couldn't tell you where it always is, but you'd, you'd think somebody'd be interested if they're gonna do a project there. There's a lot of shrimpers and crabbers there, you're not gonna see in the summer, and there's a lot of trollers you're not gonna see there, except, you know, for winter fishing. A lot of different areas are gonna be in use and the winter anchorages, seems kind of an incomplete, kinds disheartening to find out that that's, that was decided that wasn't necessary.

**A.3** I, I really don't know how to address this project when it seems like people put an awful amount of time and labor and work into it, and then kind of overlook the real basic part of it. I know I wrote back written comments, I guess that's in the scoping document, a while back in reference to an endangered species tag caught there, I know it's not an anadromous fish that's spawning in that area, but it's found in that area and everyone else has to, like, adjust their life for it and I don't see it mentioned in this report. So I kinda feel like this is my third go around on this and made two comments and see both of them just kinda left out there in the mist, so not too optimistic that much is gonna change in this process right now, um, that's it, thank you.

**Patty Grantham** - Joe Doerr.

**Joe Doerr** - Joe Doerr, um, J-o-e, D-o-e-r-r. Um, I have some comments on the subsistence aspects of this timber sale. I'm a resident of Petersburg Alaska, and my comments will pertain to the area, um, the Cape Fanshaw area to the west of Sandborn Canal, I'm not really familiar with the area up in Port Houghton, uh, I don't feel as though the timber, this timber sale is likely to

**A.1** It is known that Canadian king Snake River salmon and forage in the salt water surrounding the project area.

**A.2** The decision to not conduct additional field studies was based on cost and the availability of data from other agencies. ADF&G was contacted to obtain information on commercial fisheries catch throughout the entire year which included information on catch, escapement, and productivity over the past 30 years. This information is more reliable than the results that would be obtained from spot sampling over a single year. Catch and escapement information would also be considered a better indicator of commercial fishing use and success than field sampling. This information is provided in Section 3.12.3.2. Recreational information was obtained by writing and calling 69 individuals and groups that have indicated an interest in recreational issues in the Tongass National Forest (including all outfitters/guides holding special use permits in the project area and individuals and groups on the Forest Service mailing list). Also see response F.1.

**A.3** Your comment has been noted. Three species of endangered salmon from the continental U.S. occur in Southeast Alaskan waters and includes the Snake River fall chinook referred to. This species is listed as threatened, is considered highly migratory, and is known to feed on herring and other small fish in offshore (high seas) waters of Southeast Alaska. The NMFS acknowledges that these fish may occur in offshore waters near the



have much of an impact on deer hunting, because, uh, as long as it stays away from the beach and protects the Cape Fanshaw watershed, I don't feel that there's really a significant number of hunters, um, hunting in that area, particularly the inland area and, uh, it's an issue, the impact of logging on the subsistence hunting is an issue. It's a real serious issue, and one that I'm very much interested in, but in this case because of the low amount of use, and because of the fact that most of the units would be in the Cape Fanshaw area would be inland, I don't think there'd be a major conflict.

- B.1** I do think this sale has a possibility of opening up, um, hunting opportunities for moose hunting. I, I worked in that area in the early eighties as an employee of the Forest Service doing biological work, um, in connection with the first Cape Fanshaw sale and there's a well distributed moose population throughout that area, uh, again which receives almost no hunting pressure because of inaccessibility, um, because of the lack of roads.
- B.2** I, I have a concern that, I'll have to back up. Moose, uh, I think will benefit from the cutting, that they'll, that they'll really use those clearcuts, and where I've done work in the past, I've done some telemetry work in nearby Thomas Bay, and they'll use generally three times as much as the old-growth on a year round basis. During deep snow conditions, moose need old-growth hab, uh, forest for winter range and I think a timber harvest schedule that disperses the units and provides old-growth forests as well as early clearcuts will be good for moose and will open up hunting opportunities. Um, I would like to see an assessment done to look at what the, um, the long-range harvest plan would be in that area. As far as perpetuating clearcuts throughout the life of the rotation. From the work at Thomas Bay, it looks like, with thinning and stuff, moose will use clearcuts quite heavily up to thirty to forty years even. Um, and so, but I, I would like, I don't, this is a rule of thumb, I don't think an initial entry sale (initial entry meaning the first thirty years of the rotation) should take more than twenty-five percent of the timber, um, as a maximum, if, if you're gonna sustain, have the ability to sustain clearcuts throughout the life of the rotation and still provide for some old-growth winter range. That's a concern, I have hunted in that area, I have gone in and taken goats off of those, some of those little, off of those peaks in there.
- B.3** And, uh, Dahlgren, Jamestown, I've never hunted Dahlgren but, Jamestown and the Saranac- Tangent and Dahlgren are, I sort of refer to those as little goat oases, they have goat populations, the goat populations are for the most part, small, in some cases there are, I see as many as thirty goats on some of those ranges and I know they, they move in between the ranges. Um, I'm concerned about them, logging on the south side of Dahlgren, because it looks like, in some of the alternatives, it looks like it's very excessive.
- B.4** It's difficult to know exactly what sort of habitat goats would need to disperse between those small peaks and also what would be the most critical time of movement, where the movement would be mostly during the breeding season, whether it would be during the winter, or whenever, but I think the best strategy would be the strategy that maintains some natural corridors between Dahlgren

outer coast of Cape Fanshaw, but the agency did not list this species as one that could be affected by the proposed project; that is the reason the species is not listed in Chapter 3 under Threatened and Endangered species.

**B.1** Comment noted. Moose harvest information from ADF&G shows about one to two moose per year is successfully hunted from the project area. Road construction would likely result in an increase of moose hunting in the project area.

**B.2** A long-range harvest plan in the project area has not been developed. Harvest area and percent harvest in each watershed by alternative for the proposed harvest is shown in Table 4-18.

**B.3** The alternatives were structured to address the issues, and Alternative C, without the continuous road system, was perceived to provide the most protection to the goats in the Dahlgren/Saranac Peak area. Alternative B was the second most protective. The protection of the goats will be a consideration in the selection of the preferred alternative.

**B.4** No harvest is planned between Jamestown and Saranac Peak areas. Also see response B3.



and Jamestown, between Jamestown and the Saranac-Tangent peak areas.

- B.5** One more point on the . . . currently the Petersburg harvest of goats is not considered subsistence even though all other rural communities, like from Barrow to Ketchikan, or Barrow to Southeast Alaska are considered, um, subsistence users of goats on the mainland over there I think the exclusion of Petersburg as a subsistence user of goats is a, is a bureaucratic oversight that hasn't been corrected by the Federal Subsistence Board although there's been a number of attempts to do that and I would, I would encourage the contractors to analyze the goat harvest as well as the moose harvest from the rural communities as a subsistence use in this analysis.

**Patty Grantham** - Thank you. **Craig Olson**.

- C.1** **Craig Olson** - Hello, my name is Craig Olson, that's C-r-a-i-g O-l-s-o-n. I'm a Petersburg resident, uh, and my income comes from the fishing community, and, uh, it's my comment, uh, first is that, uh, I'd like to say that I like the Alternative B that, uh, stays out of the head of Sandborn Canal. And, uh, would like maybe to see that, if there are any units east of Sandborn that they be, uh, helicopter units like, uh, maybe a combination of a couple of the, uh, two alternatives up on the, uh, board there.

- C.2** But, uh, what I'd like to ask is that the Record of Decision and the, uh, sale, be put off until after the, uh, the new T-Lump (TLMP). And, uh, the area, the reasons for this is that I kinda question the need and purpose of the sale of 120 million board feet and exactly how that was arrived at and I don't think that was a mid-level planning process in which people in, uh, Petersburg could, uh, comment, and, uh, be part of the Forest Plan that, uh, determined that there was a need to take that much timber out of this area and, uh, I don't think that taking that much timber is gonna allow for, uh, other multiple uses that this area receives and the consideration that the, uh, legislature intended when they, uh, having this a LUD area.

- C.3** Another concern of mine is that the, uh, sale as it is now, uh, doesn't address, uh, all the, uh, concern of the anadromous fish habitat assessment, uh, AFHA, I sometimes say that word, I'd just to say that, uh, AFHA says that the long term application of current procedures, could lead to declines in habitat productivity and eventual loss of stocks and need for listing of salmon and steelhead stocks as endangered or threatened procedures similar to those currently used to protect fish habitat on the Tongass National Forest, especially buffer strips along fish streams, after being applied for nearly two decades in similar landscapes and conditions in coastal Washington and Oregon failed to prevent declines in fish habitat and capabilities and resulted in increasing, and now, significant risk to the viability of steelhead and now, salmon stocks.

Rapid movements towards extinction is possible if both marine and freshwater habitat product, productivity decline simultaneously and, uh, AFHA clearly says that the Forest Service is not doing enough to protect the long term health of fish on the Tongass and

**B.5** Mountain goats and moose are included as a subsistence resource in Chapters 3 and 4 of the FEIS. However, this does not have any legal ramifications on the regulations promulgated by the Subsistence Board.

**C.1** Comment noted.

**C.2** The TLMP has been undergoing revision throughout the latter 1980's to the present, and the 1996 draft supplement is now undergoing public review. All applicable TLMP standards and guidelines that are associated with the Port Houghton/Cape Fanshaw ROD will be applied to the project for the selected alternative.

The volume designated for this project was a result of management decision after reviewing the following criteria: (1) amount of volume available in the project area; (2) consistency with TLMP standards and guidelines; (3) a needs assessment for the independent sale program; and (4) volume needed to supply the KPC long term sale program. Of the 67,000 acres of tentatively suitable forest land in the project area; depending on the alternative selected, only about 6,000 acres would be developed under this project. Also see response to G.1.

**C.3** Refer to revisions to Sections 4.3.2 and 4.6.2 of the FEIS for incorporation of AFHA and Wildlife Peer Review recommendations.



made specific recommendations for the for,er, the Forest Service to better protect salmon and steelhead. And we had a meeting here that the, uh, uh, authors of AFHA came to town and ah, talked a little bit about the conditions that, um, lead to decline of salmon and its, its logging, uh, not only in Class I streams but in Class II and III, and siltation that results in, um, logging, um, steep slope, and drainages above the fish streams and I think that this is a condition that, uh, is gonna be present here in Port Houghton and it's gonna affect the, uh, livelihood of Petersburg, uh, fishing fleet, uh, in years to come in, uh, fishing Port Houghton.

- C.4 Another concern of mine is, uh, the log dumps and uh, log transfer facilities, and as I mentioned earlier, I think it'd be great to only have one or to have helicopter transfer on anything that's east of Sandborn, but I'd like to see a little more study of the application of. I know the Forest Service is doing some studies on the effects of previous log dumps and I'd like to see some more of that information brought to bear on how this log dump is gonna affect the, um, herring spawning and the crab fishing in the Port Houghton area. And, uh, because of the, uh, some of these concerns I think that some of this is gonna be taken care of in the TLMP and I'd just like to place my opinion that we wait on the decision until after TLMP. Thank You.

Patty Grantham - Thank you. Jay Pritchett.

Jay Pritchett - I'd like to defer until I've heard more testimony.

Patty Grantham - Jim Demko.

- D.1 Jim Demko - My name is Jim Demko. J-i-m D-e-m-k-o and I'm speaking for myself and my wife, Kelly Demko. To give the Port Houghton/Cape Fanshaw Draft EIS the full analysis and critique that it deserves would require at least the same number of man-hours, resources, and money that went into its preparation. Unfortunately, since this would require a budget equal to the annual BNP of many third-world Nations, it is unlikely to receive such warranted scrutiny. However, it is apparent, from even a cursory review of this document, that the intent and direction of the Forest Service in this timber sale is toward transformation of old-growth ecosystems which they call ("over-mature") to "managed productive stands" which I call (tree farms) to feed the voracious corporate appetite of Ketchikan Pulp Company (alias Louisiana Pacific, a convicted felon and polluter of Alaskan air and water) rather than meet the economic, social and environmental needs of the public and the intent of the TTRA.

- D.2 The often quoted and more often misquoted TTRA directs the Forest Service "to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle."

This statement only instructs the Forest Service to "seek" to meet those demands. it does not infer a mandate to "meet" such

C.4 Any decision concerning the siting of a LTF considers all of the physical and biological factors at the sites. The direct effects to herring and crab are discussed in Sections 4.2.1.4 and 4.2.1.5. Also see first paragraph of response C.2 concerning delaying until after TLMP.

D.1 This project will result in multiple timber sales. Whether some or all of these sales go to KPC or will be opened to independent sales is yet to be finalized. There has been no final decision on the size or number of sales for this area or whether they would be offered as SBA set-aside sales for long-term offerings. Tentatively, some of this timber may go to KPC to meet the contractual commitment of the government to KPC. Any decision on how to actually sell timber from the project is an administrative decision beyond the scope of this analysis.

D.2 See second paragraph of response C.2, and second paragraph of response G.1.



demands and it clearly states that they are subordinate to the "multiple use and sustained yield of all renewable forest resources." A 1986 amendment to the TLMP scheduled a 25 MMBF timber sale in Port Houghton to be offered in 1993. But in the early 1990s the Forest Service inflated this timber target to 125 MMBF without public process or consideration of other resource users.

Further evidence of the lack of balance of Forest Service priorities is apparent by the singular interest emphasis of each of the five alternatives. Alternative A, provides for full protection of the ecosystem; Alternative C, offers to adequately protect anadromous fish streams; Alternative D seeks to minimize damage to the view from small boats; and Alternative E favors the largest production of timber from a concentrated area.

- D.3 By offering four unbalanced alternatives and one the pretends to be balanced, their preferred Alternative B, the Forest Service has failed to provide a range of "viable" alternatives and has stacked the deck in favor of a predetermined outcome which serves the economic interests of Ketchikan Pulp Company.

- D.4 There are also subsistence inequities incurred by the decision of the Forest Service to offer timber sales to KPC outside of their contract area. While the Ketchikan area would receive any economic benefits from this sale, the people of Petersburg are required to sacrifice our hunting areas, our fishing wealth, and our scenic retreats.

- D.5 Any and all clearcut logging equates to loss of habitat. Some affected species may seek refuge on adjacent lands, but due to the already full carrying capacity of those habitats even those animals and their progeny will be lost. Furthermore, the intent of the Forest Service to "convert" old-growth habitat in Port Houghton into "managed stands," and future plans to capitalize on their investment in roads and surveys, insures that more adjacent habitat will be sacrificed and that these habitats and the life they support will never return.

- D.6 The Forest Service also claims that there would be no significant damage to subsistence fishing caused by this timber sale. However, they declined to incorporate the recommendations of their own scientist findings in their Anadromous Fish Report which concludes that their current practices to protect fish streams and habitat are inadequate to protect the resource. If the Forest Service does not include its own best and most current research, how do they expect to reach a valid determination. And of greater concern, why should believe their conclusions?

- D.7 This EIS, while containing a thorough and detailed analysis of the economics of the timber industry, has only a rough estimate as to the economic value of fishing and tourism industries. They project a decline in the timber industry, decline in the fishing industry and a rise in the tourism industry, based on the beauty and health of our area, will require utilizing more remote and scenic opportunities like Port Houghton as it grows, and that large scale clearcut logging diminishes these opportunities.

D.3 Comment noted. However, we believe that the alternatives are unique and address the issues. The alternatives were not developed to represent a single interest.

D.4 The resources are being managed, not sacrificed. Benefits stemming from this project will be felt throughout the Southeast Alaska economy. Also see response D.1.

D.5 Management actions which change the existing condition do not equate with total loss. Some species gain, others lose; but a balance is being struck which we think is acceptable. The plan for this area and the alternatives developed have considered all resource values as they are now known.

D.6 See response C.3.

D.7 The anticipated decline in timber employment is based on the decrease in projected harvests on Native-owned timber land (Alaska Department of Labor 1991). The potential economic decline in commercial fisheries is due to increased competition from Russia, Chile, and offshore processors; as well as from increased hatchery production,



**D.8** Their exclusion of knowledge critical to fish protection and neglecting to accommodate for their own projected expansion needs of the tourism economy indicates the willingness of the Forest Service to discriminately sacrifice subsistence, commercial fishing, and tourism for the short term gains of logging.

**D.9** Of the offered alternatives, only Alternative D meets or exceeds all the stated objectives of the Forest Service, with the exception of cost to the timber companies. Their preference for Alternative B asserts that the financial prosperity of Louisiana Pacific Corporation outweighs all other needs and concerns.

**D.10** We recommend that this timber sale be canceled or indefinitely postponed until the completion of the TLMP revision including the adoption of a credible wildlife plan, Habitat Conservation Areas and the recommendations of the Anadromous Fish Report. We also recommend that any proposed timber sales in this area be limited to the 24,000 acres and 11,000 acres of commercially operable forest land on the Chatham and Stikine Districts, respectively, which are identified in the current TLMP; that any timber extracted be removed by barge as used in the Campbell sale; that utility logs be included in the stated volume; that the sale should go to independents rather than KPC as it is outside of KPC's operating area; and that such timber sales consider and balance the present and future needs of all forest users. Thank you.

**Patty Grantham** - Thank you. Jack Slaght.

**Jack Slaght** - I'm Jack Slaght. J-a-c-k S-l-a-g-h-t. I was looking forward to hunting that area if they harvest it and I've read the EIS, um, and I like Alternative B. I've harvested timber most of my life and, uh, I've hunted stands where I've worked previously and, if we can open up roads and clearcut, um, I'd love to hunt that area. From what I've read on the impact to wildlife and the carrying capacities it, it appears to me that the alternative plans would not negatively impact deer habitat to a great degree. I listened with interest to what Jim Doerr had to say and, um, that sounds reasonable. Anyway, that's about all I have to say I just, I would really like to hunt that area someday if there are roads to walk. I think it could open up some really nice possibilities for deer and moose habitat. That's all I have to say.

**Patty Grantham** - Thank you. Mona Christian.

**E.1** **Mona Christian** - My name is Mona Christian, I live in Petersburg, I'm a local business owner and I'm speaking for myself. My comment is to encourage smaller timber sales to local, smaller, independent timber operators. When offered over a longer period of time, these sales, and resulting jobs, will both support and strengthen the local economy. Ketchikan Pulp Company has stated that it is not strongly interested in the Port Houghton area. The 93 million board feet of timber that would be offered to KPC would be an incredible boost for small operators. An area such as Port Houghton that is so crucial to Petersburg residents and fishermen and become more valuable to tour operator should be developed, i.e. logged, if it has to be, by local timber business people. If this is done, logging on a long term basis, would lessen impacts on the area. If the amount of timber

and unpredictable seafood demand from Japan (Alaska Department of Labor 1993). The increase in tourism is primarily due to increased cruise ship and ferry traffic (USDA-FS 1993a).

**D.8** Multiple uses have been integrated into the Port Houghton project area. Of the 67,000 acres of tentatively suitable acres in the project area, depending on the alternative selected, only about 6,000 acres would be harvested; this is only 9 percent of the possible acres. The vast majority of the project area would remain as undisturbed. Mitigation measures to protect the resource values have been developed for units, roads, and within the alternatives developed as described throughout the EIS.

**D.9** All four action alternatives meet the purpose and need of the project. Also refer to response D.3.

**D.10** Protective measures for wildlife have been incorporated into all action alternatives, and wildlife mitigation measures have also been developed. Total area proposed for harvest ranges from 5,471 to 7,244 acres depending on the action alternative. After the conditions of the sale have been established, the methods used for timber transport from the project area will be a decision primarily made by the purchaser. The method of transfer at the LTF's will be identified in the ROD. The utility volume was not included in the figures because volumes were to be reported in net sawlog. Also, it is more accurate to estimate the net sawlog component of the total volume then to determine utility volume. Depending on the area, the utility component can vary from 10 to 30 percent and is really determined when logs are scaled, not from standing trees. Also see responses C.2, C.3, and D.1.

**E.1** Because of the need from some sales to be large or larger than what could be financed by a small operator due to development costs, it would be impractical to have a goal to limit the bidding to only small operators on



offered, is offered in smaller sales over a longer period of time, the benefits to the local economy will be maximized while the impacts will be minimized. Thank you.

Patty Grantham - Thank you. Deb Hurley.

Deb Hurley - I'll write my comments.

Patty Grantham - Carolyn Pritchett.

F.1 Carolyn Pritchett - My name is Carolyn Pritchett, C-a-r-o-l-y-n-P-r-i-t-c-h-e-t-t, and I'm a resident of Petersburg. I guess my first comment is a process question, or comment and that is, that it concerns me that the presentation that was made a year and a half ago was basically one of, we are gonna cut 125 million board feet or something similar to that and, where do you want the roads and where do you want it cut and there was a large, um, outcry of, you know, there are other options and a large number of questions that were asked at that time I don't see that those necessarily have been addressed and it concerns me that we spend the time to come to meetings and to express ourselves, uh, with serious concerns about things that are going on in our own backyard and they don't seem to be listened to, um, specifically.

F.2 Uh, my main concern would be the recreation. I think if Parametrix had been concerned about the recreation use of the area beyond the, um, feeling that commercial guides are the only ones that could possibly use the area it wouldn't take a, um, a small question to Patty or to Tom or anybody to find out who the recreational users in Petersburg might be. And I think that that is something that should have been addressed and I'm sorry that it was not.

F.3 I guess that my preference would be somewhere between A which was given such credence in no logging that it doesn't have a map and B so that you have somewhere less than 125 million board feet. But something that still would benefit local loggers in Petersburg rather than KPC. Uh, I think that's a relic of the past and I hope that in the new T-Lump (TLMP) revision that it is stated such in writing, um, I feel that all should be done to encourage the multiple use of this area. I would think that as well as the loggers, that the fishermen in Petersburg have a serious concern that this would impact the future and I think that their concerns should be listened to.

F.4 Um, I would like to see from a recreational point of view, as someone who has kayaked and spent time in that area, no cutting east of Sandborn Canal and its watershed all the way up through Salt Chuck. And I guess that final comment I have is that, uh, echoing the people before me that I would very much like to recommend the decision on this sale be postponed until the revision of the T-lump (TLMP) process so that this would be the first sale of the next, uh, revision, the next period in the future of Forest Service management. Thank you.

Patty Grantham - David Kensinger (sp?).

every sale in this area. It would also be anti-competitive.

F.1 Any action alternative developed has to meet the purpose and need of the project. The scoping process is designed to allow the public to participate and express their concerns and impart their knowledge about the resources in the area. This insures that the resource values will be analyzed correctly and protected to the extent practicable. From scoping on this project, comments were analyzed in detail and the most optimum approaches for collecting additional information was used. Whether or not the knowledgeable public is willing to reveal their insights on resource values for this area is another matter. The alternatives developed meet current resource protection standards. A concern about any action alternative does not mean that resource values have not been protected.

F.2 All reports and analysis conducted by the contractor have been reviewed and approved by Forest Service resource specialists. Also see response A.2.

F.3 See response E.1.

F.4 See response C.2.



- G.1** David Kensinger (sp?) - Let's see I'm, uh, David Kensinger (sp?) I'm a Petersburg resident and I guess, I guess I kinda echo the same question, uh, why a 125 million board feet I really don't know how this number came about and I guess I'd like to see where this number came from. Maybe we should be logging more than 125 million board feet. Maybe we should be logging less. There doesn't seem to be any process or any information on where this number came from. It wasn't addressed in the EIS and there really wasn't, there really wasn't any, any comment on it. So and it seems to be a bone of contention with, from both sides. And I'd like to see, uh, something addressed to that question and it seems like we missed part of the process here.
- G.2** When we developed how much timber we're gonna log here and my main concern is with, I can't pronounce this word, but I'll try it . . . the anadromous fish plan and I, it makes a lot of common sense, I think anybody that lives here in Southeast Alaska can look at this and say that some of these things make a lot of sense and really the only mention that I could find in this EIS referring to this plan was a section where it stated other subsistence which states that salmon stocks may naturally decline due to a direction change of ocean currents, and that's kind of troubling because, uh, lets face it, uh, a major part of our economy depends on fishing resources, and if that's the only mention of this document the Forest Service generated, then to me it indicates, uh, perhaps this document should have been given a little bit more, should have been given a closer look in the development of the sale.
- Some of the things that it directs, it says, it says that, uh, we need to provide a consistent message that current procedures and their implementation on the Tongass National Forest to protect fish habitat are not fully effective to prevent habitat degradation. Now there is a lot of sales that are planned for this area and a lot of those sales quite frankly are not in high fish habitat areas. They're not logging in areas where, you know, where there's going to be an impact if something doesn't work as we think it will according to the science methods.
- G.3** But this sale in Port Houghton is a very important fisheries area, and I think if we are going to go into this area and log, we need to do a full-scale watershed analysis and basically what that means is we just go in we and take a look at this whole watershed as a whole and figure out, okay what happens if we go in and log in this area and I know a lot of these questions were addressed in the EIS but I don't think this plan and the recommendations of it were incorporated in this document and, uh, the study is, the Forest Service has spent a lot of money on it as I know they have spent a lot of money on the Port Houghton/Cape Fanshaw timber sale, and it seems if we're going to spend all this money on these studies, we should start listening at some point to some of the impacts of these studies.
- G.4** I think it is possible to log in this area, I think it's a valid area to log in, but I think there needs to be a little bit closer look and I think there needs to be a little bit carefuller analysis of this before this sale proceeds and this issue and these analyses were brought up in the preliminary hearing on this and I really don't feel that they have been adequately answered, at least to the satisfaction of
- G.1** The purpose of this EIS is to formulate a plan for a large area (137,000 acres) to guide the harvest of timber for several years an to properly evaluate the cumulative effects of all management actions in this area. From the data available on this area, the Forest Service estimated that the timber volume that could be NEPA cleared would be in the 110-125 MMBF range.
- What is confusing some people is that the first sale in this vicinity was for 47 MMBF; now they question, why so much more volume? The answer is there is more area being considered. Only about 47,000 acres were considered in the first study area; there is 137,000 acres in this effort. This is not an EIS for one sale. This is a NEPA effort to determine the areas suitable for development with roads, units, and LTF's. The number and the types of sales will be determined by management direction and needs after the NEPA decision is made.
- G.2** See response C.3.
- G.3** Fisheries resources have been evaluated on a watershed basis and suitable protective measures have been incorporated to reduce the risk to this resource. The system of planning called watershed analysis is still being developed and is not suitable for use at this time.
- G.4** See response A.2, C.2, and G.3.



the local residents here at this step of the process, and so my challenge to the Forest Service is to go back in and to take another look at this and to wait until TLMP comes out to see where this all lands and to do a full-scale watershed analysis of this area and really get an idea what the impact is going to have on this area. Thanks.

Patty Grantham - Thank you. Jim Green.

H.1

Jim Green - J i m G r e e n. I'd like to, uh, recruit together, uh, oh I guess a petition last October which basically just users of the Port Houghton area. I'd like to submit this to Parametrix for the record. And I'm a commercial fisherman which is how I subsist. I try spend an average in the last oh six-eight years probably 30 to 40 days a year in Port Houghton. Uhm. I don't feel that the people that use the that they have been given the opportunity to justify to what extent do we use it. Uh, I don't know if, I suppose that would be addressed to Parametrix. I see a lot of people who spend a lot more time than I do in that bay and I don't know that any of them have been contacted. I don't, I think that all you have to do is advertise in town. I feel that, uh, I've written my testimony and I don't feel the EIS is complete. Thank you.

H.1 See response F.1.

Patty Grantham - Thank you. Dave Beebe.

Dave Beebe - My name is David Beebe, D a v i d B double e b e. I'd like to give some context to this testimony. Uh, I've been living and working in Southeast Alaska for 13 years now. Before moving to Southeast I attended school in western Washington for 6 years, allowing me a ringside seat to the progression of events which lead to the demise of the commercial fishing industry and the timber industries there. Long before the spotted owl became the canary in the gold mine to some, and a circling vulture to others, I attended public meetings held by the U.S. Forest Service as they pursued an aggressive timber harvest program in the Pacific Northwest.

It was clear then, as it is now, this agency was commanded to perform mission impossible. That mission was to satisfy the demands of the politicians who controlled their budgets and who controlled their bosses and who made their laws. When this agency attempted to explain to these politicians that not all their demands could be made at the same time, they were told to shut up and get back to work, and so they did. They continued to meet their timber targets, they continued to hold their public meetings just like this one, and they continued to reassure an increasingly nervous public that there was no cause for alarm all those trees would grow back. All those clearcuts and logging roads wouldn't harm the salmon, and besides, whole communities were depending on the timber industry to provide them with a livelihood.

You know I recall very few salmon fishermen attending those meetings after all, the fishing was good then. They had their limited entry permits, and it seemed like every time they turned out turned around, a new hatchery was being built. Now 20 years later, it's not just the spotted owl that's on the verge of extinction. Scientists are reporting 24% of their salmon runs are extinct, 23% are at a high risk of extinction, and 25% are either at moderate



risk or of special concern. What does this mean to those fishermen?

Let's take a look at the price of limited entry permits. A salmon drift gillnet permit can now be bought for \$500 or less. That's about 1/120 the value of a gillnet permit in Southeast Alaska right now. A salmon seine permit in western Washington currently goes for \$5,000. Well, that's well under the value of a hand troll permit here.

And there's a lesson worth learning here for commercial fishermen of Southeast Alaska. Teams of scientists were sent to the Pacific Northwest to learn those lessons in detail and as a result, a great deal of invaluable science was produced by the viable populations committee, the anadromous fish recommendations, and a report to Congress entitled Anadromous Fish Habitat Assessment.

I.1

But after going through the DEIS on Port Houghton/Cape Fanshaw timber sale, those lessons have been ignored. I haven't had a whole bunch of time to look into this, uh, cause I just got back and but what I saw I'm not too excited about. Uhm. There's not one reference to the anadromous fish habitat assessment or even resident fish in the index in this DEIS. The glossary reference to habitat conservation areas in the past tense. Habitat conservation areas were central to the viable populations committee recommendations and didn't magically go away when Alaska's delegation pulled a fast one in the 1995 Recision bill.

I.1 Refer to the revisions to Sections 4.3.2 and 4.6.2 of the FEIS for incorporation of AFHA and Wildlife Peer Review recommendations.

This EIS goes on to completely ignore the serious concerns of the interagency viable populations committee regarding the retention strategies in the 1979 TLMP. And the 1991 revised supplement to the TLMP. Those concerns clearly stated that those retention strategies would lead to serious risks to the long-term health and viability of wildlife on the Tongass and would therefore violate the National Forest Management Act.

I.2

Quite frankly, it's, it's difficult to have any faith in the TLMP process when it becomes clear there is no interest in this agency to learn from those mistakes of the past. The DEIS ignores the 1996 amendment to TLMP which states quote: All areas considered for retention must be fully displayed in the NEPA documents and they must include, uh, a number of different things, such as the location of the respective wildlife management unit, uh, acreages contained for perspective retention areas by volume class, wildlife species species to be featured, specific retention prescription, description of habitat values . . . it just goes on and on and these have been ignored, uh, and it is very clear that we are not learning from the tragedy of the timber industry in the Pacific Northwest and the consequent tragedy of the fishing industry.

I.2 Refer to Section 5.4.1.2 for a discussion on how retention has been incorporated into the FEIS.

I.3

I'm not against timber harvest, but let's face it. This timber sale is too much too fast with too little attention paid to long-term sustainable jobs in the timber industry, and that's not to mention the hazards imposed on other forest-dependent industries in the Tongass. There's a lot of other industries to concern, uh, to be concerned about too with this sale. As has been mentioned before, there's there's crab and shrimp and herring and, um, you know for that matter sea cucumbers, uh, this it just seems that, uh, it's a,

I.3 Refer to Section 3.11 and 4.11 for discussions on employment in the timber and commercial fishing industry. Also see response C.2.



it's a difficult situation for, uh, people to to as onlookers of this NEPA process to have any confidence that the Forest Service is really, uh, acting on our best interest.

I.4

Especially as we watch the Forest Service give away the lions share of the timbered watersheds of Port Houghton and Sandborn Canal to a pulp company that's already been convicted of anti-trust violations as well as Clean Air and Clean Water Act violations. I'd ask that the Record of Decision be postponed until the final TLMP document is produced to the public so those recommendations can be incorporated in into such an important timber sale as this is. I'd ask that, uh, an alternative that more fairly treats the other forest-dependent industries on the Tongass, uh, be included in this EIS, I think that 125 million board feet is just, uh, basically proceeding as the Pacific Northwest has been pretty much decimated. Uh, we need to learn those lessons and I just don't think we have yet. So. Thank you very much.

Patty Grantham - Thank you. Jay Pritchett.

Matthew Boyle - Oh, I need to, uh, I need to take a recess just for 30 seconds just to change the tape. The time is 8:10.

Patty Grantham - State your name and spell it please.

J.1

Jay Pritchett - My name is Jay Pritchett. J a y P r i t c h e t t. Uh, I made a comment before hearing what some of the rest of you had to say in the hearing earlier. Uh, for the record now I would like to state that it seems to me that the Forest Service does not have enough information, has not utilized information that has been provided for them in order to go forward with this sale. Certainly there is information that they have not looked at that in regard to fishing either commercial or recreational. Uh, tourism seems to be virtually ignored.

Subsistence, obviously, is what the meeting is about this evening, and people have spoken to it much more eloquently than I can and as I mentioned before the meeting began, this idea of local recreation, uh, that it might be of some value to those of use who live here. Uh, it does make me question the entire process and I, as some of the other people here have done, do question whether this is the time for the decision. I would like to see it postponed until these other issues that I have just mentioned, and others too, can indeed be addressed that they, where we feel comfortable, that they have at least taken these things into consideration. Thank you very much.

Patty Grantham - Thank you. Deb Hurley. (can't hear response) That's everyone I have on the list. Did anyone come in late or change their mind about testifying that would like to come up now? Well it's about 8:15 and we can go. I believe we advertised this until 9:00, there may be some late comers that are going to come and be interested in testifying. I can recess until someone identifies themselves as wanting to testify up until about 9:00. Um, would you like to testify now Bev? Okay.

K.1

Beverly Richardson - My name is Beverly Richardson. B e v e r l y R i c h a r d s o n and I live in Petersburg. Uh, I hate to be

I.4 See response to C.2.

J.1 Refer to Sections 3.11 and 4.11 (economics) and 3.8 and 4.8 (recreation) for discussion on these industries. Also see response A.2.

K.1 The no action alternative (Alternative A) is discussed throughout



real redundant, but I'm going to say things I guess that I've said before, but I don't feel, um, were addressed, and maybe this time, um, they are. I've come here tonight. I wish the Forest Service to choose the No Action Alternative, um, however, in looking around I don't see that there is one. I thought by law it had to be provided and, uh, I'm just I guess real concerned that there is doesn't appear to be a No Action Alternative. Um, but however, I wish them to choose a No Action Alternative and to harvest timber in this area would cause too many impacts on the other resources of the area. The fishery resources in this area are too important to risk, and the area is also important habitat to other wildlife resources. There is less and less high value habitat for fish and wildlife on the Tongass.

It is time for the Forest Service to alter its pro-timber bias and assure that the forest is managed for other resources. Uh, this area provides rich resources for other use of the Tongass. This area is used by charter vessels, tourists, and by residents of the Southeast for its scenic quality. This area is viewed by passengers on the ferry service as well as by private boaters and a large, the large majority of these people do not wish to see clearcut. Fishermen, commercial, subsistence, and sport rely on the productivity of the streams in this area. The streams must not be adversely impacted. Period.

K.2

Um, this area was declared wilderness by the U.S. House of Representatives in its version the Tongass Sandborn Canal because of its outstanding qualities. This bill pass the U.S. House by an overwhelming majority. It was only in conference committee that this area was dropped to satisfy the pro-timber bias of the Alaska delegation who felt that this area was needed to feed APC. Um, I have requested in the scoping document that a complete documentation of the house bill be included in the EIS. Um, an outpouring of letters to Congressmen from Alaskans as well as other people nationwide ask that all of the 19 areas that were included in the house version be designated wilderness. This history needs to be well documented and discussed in the EIS. It is not.

K.3

If timber sale is initiated for the long term sale to feed the APC pulp mill, since APC is in violation of its contract and the contract has been canceled, this timber sale is no longer necessary. This is entirely too large to qualify as an independent sale as necessary to satisfy true independent logging operations. There is no need for this sale. The Tongass Timber Sale Reform Act states that the Forest Service shall make timber available to meet market demand only if this timber can be harvested while complying with other constraints.

K.4

Due to the outstanding qualities of this area the proposed timber cannot be harvest without violating other guidelines that the Forest Service is also directed to take into consideration in managing the forest. Um, the EIS must address and make provisions to implement all the concerns and recommendations made by the interagency committee and the peer review group and the resulting reconciliation memo. To not implement these recommendations would put the management of the Tongass in violation of the

the EIS. For a summary of the alternatives, see Chapter 2, Alternatives Considered in Detail. Also see response G.3.

K.2 The evaluation and recommendation for wilderness is determined at the Forest Planning level - not at the project level which is the level of this effort. The fact that this area was discussed but then not made wilderness by Congressional action is also significant. Refer to revisions in Section 1.4.3 of the FEIS.

K.3 The APC contract has been terminated and the mills associated with that company have been closed. Timber in this area could be made available to other operators. Also see response D.1.

K.4 The proposed timber sale project would be implemented in compliance with all federal and state regulations, standards, and guidelines. No guidelines would be violated.



National Forest Act. And it would lead to serious risks to the long-term health and viability of wildlife species on the Tongass.

K.5

Roads into this area will decrease habitat for wildlife species by segmenting areas. These roads will create easy access to these areas for hunting, well beyond that that the area now supports. These are negative impacts on the resources that are not necessary and are not justified. Both Sandborn Canal and the Rusty River at the head of Port Houghton are areas that the Forest Service should recommend as Wild and Scenic Rivers. The Forest Service should make every effort to encourage Congress to declare these areas as Wild Rivers and to manage these areas under the guidelines of the Wild River until such designation becomes law.

K.5 Identification of either the Sandborn Canal or Rusty River as a Wild and Scenic River is a TLMP decision, and not a project level decision such as this. Wild and Scenic Rivers are discussed in Section 1.7.

K.6

A new and up to date Tongass Land Management Plan is long overdue. It is archaic to be managing under land designations set up with inaccurate and outdated timber data as well as outdated biology. The focus of how the people of the U.S. want their forests managed has changed substantially over the ensuing years. It is time for the plan to be updated. All planning on this timber sale should be withdrawn until the Tongass Land Management Plan can be redone. The Forest Service is engaged in proposing this sale. It appears that the Forest Service is in hopes of getting it out before the new plan can respond to the concerns for this area. Again I request that the Forest Service select the No Action Alternative and begin to manage the Tongass for the well being of its other users. Thank you.

K.6 See first paragraph of response C.2.

**Patty Grantham** - Is there anyone else? It's about 8:20 we can recess until about 8:45 in case someone else, uh, comes in. It's about 8:45 and, uh, we're going to reconvene the hearing so that anyone who is a late comer or anyone who would still like to give some testimony can come up and, uh, testify. Is anyone interested? Would you state your name and spell it for the record please?

L.1

**Carl Crome** - I'm Carl Crome. C a r l C r o m e. Live in Petersburg. And I, uh, feel that I can't sit there in good conscience and not say something. At least put into the record that somebody is not going to be negated here tonight. So far all I've heard tonight is, uh, uh, it reminds me of the old Bing Crosby song, accentuate the only in reverse. Accentuate the negative, eliminate the positive. Logging is not as negative as it has been set up to be here tonight. Loggers are good people too. They deserve or have a right to make a living also. They have little ones that are just as cute as the rest of us have. And they have a right to be able to buy food for em and clothes for em and put shoes on em too. Logging can be done in a very positive fashion. It doesn't have to be negative.

L.1 The winter fisheries information was obtained from ADF&G and is included in the FEIS. Also see response A.2.

Ah, sigh, I agree with a lot of things I've heard here tonight. I've heard a lot of real good statements here tonight. The, uh, statement a while ago that there had been none of the winter fisheries taken up and the statement that, uh, a suggestion was made a couple of years ago at the meeting and apparently nothing was done when it came to looking into any of the winter fisheries, at least I've heard nothing from the Forest Service yet tonight that would indicate that they did indeed do some work or look into it.



All I've heard so far is that they didn't. They only looked into the summer part of it. And I would say that certainly some look into the wintertime aspect of it should be looked at.

But most of the comments and all of the testimony that I've hear here tonight sounds like me when I'm trying to talk somebody out of something. It's, uh, there's been no mention of any of the positive and the negatives have been stressed and stressed and stressed again. And I just felt that I had to go on record here to show that somebody at least somebody in Petersburg is at least for, uh, some kind of logging, whether it's here or whether it's other places is certainly argumentative. Uh, whether it should be done in Port Houghton, whether it's not, I haven't done any research into this.

There is a lot of fishing there. There is a lot of reasons to be careful. But there is certainly no reason to believe that it can't be done wisely and carefully. It's certainly been done so in a lot of other places. And I just felt that I needed to say something. And was least make a statement that it could be positive and doesn't have negative. I've got a lot of friends who are loggers, and for the most part, they're real good people. And the, uh, have little ones to raise just like the rest of us do and did and I see no reason to play God here. I see no reason to, uh, to try to, uh, prove that one person's occupation is not worthy and those other people's occupation's very holy. And I just get real tired of all the negativity. And that's all.

**Patty Grantham** - Would anyone else like to give testimony before I adjourn? Well it's about 8:50 and we're going to adjourn the hearing.

**PORT HOUGHTON/CAPE FANSHAW TIMBER SALE  
PROJECT  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
SUBSISTENCE HEARING  
MARCH 6, 1996  
KAKE, ALASKA  
CITY HALL KITCHEN**

Residents attended the open house. No one volunteered to speak for the Hearing Testimony.







# **Appendix H**

## **Wildlife Tables**



# Handbook

of the



Table H-1

**MIS Species Habitat Capability (acres) in the Port Houghton/Cape Fanshaw Project Area for Alternative 2.**

Species	Unsuitable HSI = 0		Unsuitable 0 < HSI ≤ 0.3		Marginal 0.3 < HSI < 0.7		Suitable 0.7 ≤ HSI < 1	
	WAA 2927	WAA 1601	WAA 2927	WAA 1601	WAA 2927	WAA 1601	WAA 2927	WAA 1601
Sitka black-tailed deer with predation	124,775	8,739	23,625	33,837	1,880	7,008	--	--
Mountain goat	84,163	44,681	52,560	3,670	11,871	313	1,330	888
Black bear	38,655	290	18,612	1,998	63,789	34,176	28,868	13,087
Marten	57,366	2,302	47,575	21,132	7,276	6,537	38,062	19,612
River otter	141,517	44,556	808	1,090	--	--	7,600	3,905
Bald eagle	142,194	45,631	128	15	2,098	1,815	5,505	2,090
Red squirrel	57,064	2,318	47,282	20,413	43,885	26,696	1,693	125
Vancouver Canada goose	107,891	22,299	23,656	6,515	17,145	14,091	1,233	6,647
Red-breasted sapsucker	63,529	3,835	40,873	18,948	20,258	3,499	25,265	23,270
Hairy woodpecker	104,401	23,438	13,031	12,900	12,234	9,734	20,258	3,479
Brown creeper	117,433	36,071	12,234	9,982	--	--	20,258	3,499

Note: Numbers for WAA 2927 include VCU 78 which is outside the project area. The HSI for wolf cannot be calculated by the existing habitat capability model.



Table H-2

**MIS Species Habitat Capability (acres) in the Port Houghton/Cape Fanshaw Project Area for Alternative 3.**

Species	Unsuitable HSI=0			Unsuitable 0 < HSI ≤ 0.3			Marginal 0.3 < HSI < 0.7			Suitable 0.7 ≤ HSI < 1		
	WAA 2927	WAA 1601		WAA 2927	WAA 1601		WAA 2927	WAA 1601		WAA 2927	WAA 1601	
Sitka black-tailed deer with predation	124,776	8,745		23,512	33,435		1,992	7,404	--	--	--	--
Mountain goat	84,073	44,631		52,650	3,718		11,844	23		1,358	1,180	
Black bear	38,655	290		18,289	1,993		49,874	20,969		43,106	26,300	
Marten	57,370	2,308		45,163	19,051		7,694	6,760		40,053	21,465	
River otter	141,517	44,556		788	1,045		--	--		7,620	3,950	
Bald eagle	142,174	45,586		128	15		2,100	1,818		5,522	2,132	
Red squirrel	57,064	2,325		44,847	18,983		46,235	28,118		1,778	125	
Vancouver Canada goose	107,048	21,566		24,088	6,575		17,553	14,536		1,235	6,874	
Red-breasted sapsucker	60,791	2,408		41,180	18,953		21,433	3,844		26,520	24,347	
Hairy woodpecker	101,971	21,360		13,534	13,743		12,986	10,604		21,433	3,844	
Brown creeper	115,505	35,103		12,986	10,604		--	--		21,433	3,844	

Note: Numbers for WAA 2927 include VCU 78 which is outside the project area. The HSI for wolf cannot be calculated by the existing habitat capability model.



Table H-3

**MIS Species Habitat Capability (acres) in the Port Houghton/Cape Fanshaw Project Area for Alternative 4.**

Species	Unsuitable HSI=0		Unsuitable 0 < HSI ≤ 0.3		Marginal 0.3 < HSI < 0.7		Suitable 0.7 ≤ HSI < 1	
	WAA 2927	WAA 1601	WAA 2927	WAA 1601	WAA 2927	WAA 1601	WAA 2927	WAA 1601
Sitka black-tailed deer with predation	124,774	8,737	23,634	33,865	1,872	6,982	--	--
Mountain goat	84,163	44,681	52,560	3,670	12,039	313	1,163	888
Black bear	38,655	290	18,599	2,015	66,331	35,056	26,339	12,190
Marten	57,366	2,300	48,260	21,487	6,869	6,438	37,786	19,359
River otter	141,517	44,556	810	1,090	--	--	7,597	3,905
Bald eagle	142,197	45,631	128	15	2,098	1,815	5,502	2,090
Red squirrel	57,064	2,315	47,732	20,760	43,448	26,351	1,680	125
Vancouver Canada goose	108,086	22,519	23,591	6,512	17,025	14,023	1,223	6,497
Red-breasted sapsucker	63,979	4,198	40,873	18,930	20,203	3,469	24,870	22,955
Hairy woodpecker	105,074	23,783	12,616	12,750	12,031	9,569	20,203	3,449
Brown creeper	117,653	36,266	12,069	9,817	--	--	20,203	3,469

Note: Numbers for WAA 2927 include VCU 78 which is outside the project area. The HSI for wolf cannot be calculated by the existing habitat capability model.



Table H-4

**MIS Species Habitat Capability (acres) in the Port Houghton/Cape Fanshaw Project Area for Alternative 5.**

Species	Unsuitable HSI=0			Unsuitable 0<HSI≤0.3			Marginal 0.3<HSI<0.7			Suitable 0.7≤HSI<1		
	WAA	2927	WAA	1601	WAA	2927	WAA	1601	WAA	2927	WAA	1601
Sitka black-tailed deer with predation	124,776		8,739	33,837	23,531		1,972	7,008		--	--	---
Mountain goat	84,073		44,681	3,670	52,650		11,871	313		1,330		888
Black bear	38,655		290	1,998	18,609		61,969	33,414		30,691		13,850
Marten	57,368		2,302	21,133	46,048		7,494	6,537		39,371		19,612
River otter	141,517		44,556	1,090	808		--	--		7,600		3,905
Bald eagle	142,194		45,631	15	128		2,098	1,815		5,505		2,090
Red squirrel	57,064		2,318	20,413	45,730		45,353	26,696		1,778		125
Vancouver Canada goose	107,626		22,299	6,515	23,791		17,273	14,091		1,235		6,647
Red-breasted sapsucker	61,974		3,835	18,948	40,880		21,083	3,499		25,988		23,270
Hairy woodpecker	102,854		23,438	12,900	13,289		12,699	9,734		21,083		3,479
Brown creeper	116,143		36,071	9,982	12,699		--	--		21,083		3,499

Note: Numbers for WAA 2927 include VCU 78 which is outside the project area. The HSI for wolf cannot be calculated by the existing habitat capability model.



Table H-5

**MIS Species Habitat Capability (acres) in the Port Houghton/Cape Fanshaw Project Area for Alternative 6.**

Species	Unsuitable HSI=0		Unsuitable 0 < HSI ≤ 0.3		Marginal 0.3 < HSI < 0.7		Suitable 0.7 ≤ HSI < 1	
	WAA	2927	WAA	1601	WAA	2927	WAA	1601
Sitka black-tailed deer with predation	124,776	8,745	23,528	33,454	1,976	7,384	--	--
Mountain goat	83,898	44,631	52,767	3,718	11,929	108	1,330	1,095
Black bear	38,655	290	18,017	1,993	58,839	23,901	34,413	23,367
Marten	57,370	2,308	45,849	19,070	7,415	6,760	39,647	21,446
River otter	141,517	44,556	808	1,045	--	--	7,600	3,950
Bald eagle	142,194	45,586	128	15	2,098	1,818	5,505	2,132
Red squirrel	57,064	2,325	45,542	19,003	45,543	28,098	1,775	125
Vancouver Canada goose	107,081	21,586	24,178	6,575	17,143	14,516	1,253	6,874
Red-breasted sapsucker	61,219	2,428	41,445	18,953	21,238	3,831	26,023	24,340
Hairy woodpecker	102,664	21,380	13,344	13,743	12,679	10,597	21,238	3,831
Brown creeper	116,008	35,123	12,679	10,597	--	--	21,238	3,831

Note: Numbers for WAA 2927 include VCU 78 which is outside the project area. The HSI for wolf cannot be calculated by the existing habitat capability model.



Table H-6

**MIS Species Habitat Capability (acres) in the Port Houghton/Cape Fanshaw Project Area for Alternative 7.**

Species	Unsuitable HSI=0		Unsuitable 0 < HSI ≤ 0.3		Marginal 0.3 < HSI < 0.7		Suitable 0.7 ≤ HSI < 1	
	WAA	2927	WAA	1601	WAA	2927	WAA	1601
Sitka black-tailed deer with predation	124,775	8,738	23,657	33,698	1,848	7,147	--	--
Mountain goat	83,998	44,634	52,667	3,715	12,011	313	1,248	890
Black bear	38,655	290	18,134	1,993	65,858	34,874	27,276	12,395
Marten	57,369	2,301	47,136	20,322	7,211	6,662	38,564	20,298
River otter	141,517	44,556	810	1,090	--	--	7,597	3,905
Bald eagle	142,197	45,631	128	15	2,098	1,815	5,502	2,090
Red squirrel	57,064	2,315	45,857	20,238	44,318	26,873	1,685	125
Vancouver Canada goose	107,613	22,076	23,851	6,542	17,208	14,273	1,253	6,659
Red-breasted sapsucker	62,651	3,653	41,328	18,953	20,528	3,609	25,418	23,337
Hairy woodpecker	103,979	22,605	13,121	13,313	12,296	10,024	20,528	3,609
Brown creeper	117,100	35,918	12,296	10,024	--	--	20,528	3,609

Note: Numbers for WAA 2927 include VCU 78 which is outside the project area. The HSI for wolf cannot be calculated by the existing habitat capability model.



# **Appendix I**

## **Figures Supporting Recreation**



















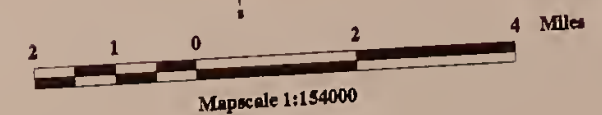
# Port Houghton

Proposed Timber Sale

Recreation Existing Situation

## Recreation Opportunity Spectrum

-  Primitive
-  Semi-Primitive Non-motorized
-  Semi-Primitive Motorized
-  Roaded Modified
-  Rec-Place
- ★ Rec-sites
  - 41.3 Dispensed Campsite
  - 31.6 Anchorage
-  Existing Harvest Units
-  Proposed Harvest Units
-  Existing Roads
-  Proposed Roads
-  Class 1 Streams
-  Non-National Forest System Lands
-  VCU Boundaries






















# Port Houghton

Proposed Timber Sale

Recreation Alternative 2

## Recreation Opportunity Spectrum

-  Primitive
-  Semi-Primitive Non-motorized
-  Semi-Primitive Motorized
-  Roaded Modified
-  Rec-Place
-  Rec-sites
  - 41.3 Dispensed Campsite
  - 31.6 Anchorage
-  Existing Harvest Units
-  Proposed Harvest Units
-  Existing Roads
-  Proposed Roads
-  Class 1 Streams
-  Non-National Forest System Lands
-  VCU Boundaries





















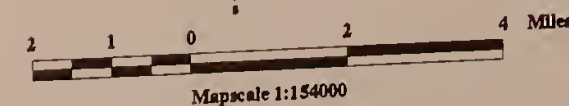
# Port Houghton

Proposed Timber Sale

Recreation Alternative 3

## Recreation Opportunity Spectrum

-  Primitive
-  Semi-Primitive Non-motorized
-  Semi-Primitive Motorized
-  Roaded Modified
-  Rec-Place
- ★ Rec-sites
  - 41.3 Dispersed Campsite
  - 31.6 Anchorage
-  Existing Harvest Units
-  Proposed Harvest Units
-  Existing Roads
-  Proposed Roads
-  Class 1 Streams
-  Non-National Forest System Lands
-  VCU Boundaries






















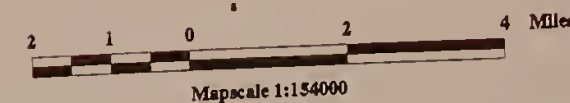
# Port Houghton

Proposed Timber Sale

Recreation Alternative 4

## Recreation Opportunity Spectrum

-  Primitive
-  Semi-Primitive Non-motorized
-  Semi-Primitive Motorized
-  Roaded Modified
-  Rec-Place
-  Rec-sites
  - 41.3 Dispensed Campsite
  - 31.6 Anchorage
-  Existing Harvest Units
-  Proposed Harvest Units
-  Existing Roads
-  Proposed Roads
-  Class 1 Streams
-  Non-National Forest System Lands
-  VCU Boundaries






















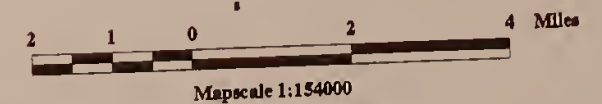
# Port Houghton

## Proposed Timber Sale

### Recreation Alternative 5

#### Recreation Opportunity Spectrum

-  Primitive
-  Semi-Primitive Non-motorized
-  Semi-Primitive Motorized
-  Roaded Modified
-  Rec-Place
-  Rec-sites
  - 41.3 Dispensed Campsite
  - 31.6 Anchorage
-  Existing Harvest Units
-  Proposed Harvest Units
-  Existing Roads
-  Proposed Roads
-  Class 1 Streams
-  Non-National Forest System Lands
-  VCU Boundaries





















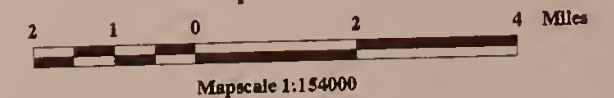
# Port Houghton

Proposed Timber Sale

Recreation Alternative 6

## Recreation Opportunity Spectrum

-  Primitive
-  Semi-Primitive Non-motorized
-  Semi-Primitive Motorized
-  Roaded Modified
-  Rec-Place
- ★ Rec-sites
  - 41.3 Dispensed Campsite
  - 31.6 Anchorage
-  Existing Harvest Units
-  Proposed Harvest Units
-  Existing Roads
-  Proposed Roads
-  Class 1 Streams
-  Non-National Forest System Lands
-  VCU Boundaries






















# Port Houghton

Proposed Timber Sale

Recreation Alternative 7

## Recreation Opportunity Spectrum

-  Primitive
-  Semi-Primitive Non-motorized
-  Semi-Primitive Motorized
-  Roaded Modified
-  Rec-Place
-  Rec-sites
  - 41.3 Dispensed Campsite
  - 31.6 Anchorage
-  Existing Harvest Units
-  Proposed Harvest Units
-  Existing Roads
-  Proposed Roads
-  Class 1 Streams
-  Non-National Forest System Lands
-  VCU Boundaries



Mapscale 1:154000









# **Appendix J**

## **Enhancement Opportunities**



# Abstract

Author Name  
Journal Name



# Appendix J

## Enhancement Opportunities

### Fisheries Projects

The primary fisheries enhancement opportunities are installation of fish passage facilities at existing migration barriers. East Fork Negro Creek has a 6-ft-high waterfall barrier approximately 2.75 miles upstream from its mouth. In 1986, the Forest Service constructed a fishpass at this barrier; the fishpass was determined unsuccessful. Successful completion of this enhancement project would open nearly 3.5 miles of additional habitat to anadromous fish. Alternatives B, D, and E provide road access within approximately 200 yards of the waterfall and completion of the project is expected to be economically feasible.

North Arm Creek has two large (approximately 70 ft and 50 ft high) waterfall barriers approximately one-quarter mile upstream from the estuary. The falls prevent fish passage to an extensive watershed, including more than 15 miles of suitable anadromous fish habitat. During high tide, it may be possible to access the base of the lower falls by boat from Farragut Bay. Under Alternatives B, C, and D, Road 8496002 ends a little more than one mile from the site. The extensive upstream habitat and potential access indicate a high potential for anadromous fish habitat enhancement by providing passage around the waterfalls. Further engineering feasibility and cost/benefit analyses are recommended.

Approximately one mile from the mouth of Cat Creek Watershed 271, a set of waterfalls is a barrier to fish passage. Two main cascades greater than 20 ft in height are separated by a whitewater reach and smaller falls. Approximately 15 miles of suitable anadromous fish habitat lie upstream. However, the closest road access to the barrier under Alternatives B, C, D, and E is approximately 3 miles. The site merits further evaluation as an enhancement opportunity.

Two smaller scale barrier removal opportunities were identified during the summer 1994 field surveys. A large (8-ft high) log and debris jam on the unnamed stream that flows into Sandborn Canal from the west (Unnamed Creek #1) occurs approximately 190 yards upstream from the estuary near timber Unit 341099. Removal of the debris jam would facilitate access to approximately 1,600 ft of upstream habitat, including suitable spawning areas for pink salmon. Removal of a minor log jam barrier on the second tributary of Placer Creek would enhance anadromous fish use of approximately 1,000 ft of suitable upstream



habitat. Road access for heavy machinery would not be necessary to conduct these enhancement projects.

### **Recreation Projects**

Existing use of the project area is by recreationists desiring a primitive setting. The proposed enhancement projects would complement current use. The enhancement projects include development of trails. A scenic waterfall currently exists a short distance from the shoreline at a recreation place on the North Shore of Port Houghton. Current access to the waterfall is over a talus slope. Development of a short trail to the base of the falls and a viewing platform would enable visitors to enjoy the beauty of the falls with less fear of injury. Short trails could also be developed to the lake about a mile east of the Salt Chuck, and along the Rusty River.

### **Administrative Projects**

An administrative cabin would be constructed at the Little Lagoon LTF site for any of the action alternatives. This cabin should be made available for recreational use after harvesting activity is completed. New recreational opportunities associated with motorized travel would result from all alternatives.

A radio repeater site will be delivered on the north shore of Port Houghton to provide radio coverage for administrative and safety reasons.



# **Appendix K**

## **Log Transfer Facilities**



# Mathematics

Mathematics is the study of numbers, shapes, and patterns.

It is a branch of science that deals with the properties and relationships of numbers, shapes, and patterns. Mathematics is used in many fields, including physics, engineering, and economics. It is a fundamental tool for understanding the world around us.

Mathematics is a vast field of study, with many different branches. Some of the most important branches include algebra, geometry, and calculus. Each branch has its own set of rules and principles, and they are all used to solve different types of problems.

Mathematics is a powerful tool for understanding the world. It allows us to make predictions, solve problems, and understand the patterns in nature. It is a language that we use to describe the world around us, and it is a language that is constantly evolving.

Mathematics is a beautiful and fascinating subject. It is a subject that is full of challenges and opportunities. It is a subject that is constantly changing, and it is a subject that is always worth studying.



# Appendix K

## Log Transfer Facilities

### LTF Construction and Operation Guidelines

[Prepared by the LTF Guidelines Technical Subcommittee (1985)]

1. Log Transfer Facility Design: Log transfer facility design should be the least environmentally damaging, practicable alternative. Factors to be considered in selection of design alternatives include: (a) economic practicality; (b) facility requirements; (c) physical site constraints; (d) timber volumes to be transferred (site usage and duration); (e) total potential effects on biota and water quality (including biological productivity and sensitivity); and (f) other potential uses of the site and facility.
2. Fill Structures: Fill structures shall be designed and constructed to prevent erosion, pollution, and structural displacement.
3. Timing of Inwater Construction: Inwater construction, blasting, and filling associated with LTF sites should be timed to limit adverse impacts to marine and estuarine fishery resources and avoid conflicts with other user groups.
4. Bark Accumulation Management: The siting, design, and operation of the LTF and contiguous collateral upland facilities shall utilize best practicable procedures and methodologies to control intertidal and submarine accumulations of bark.
5. Solid Waste Management: Solid waste, including wood and other solid waste, generated from the LTF, contiguous facilities, and other collateral facilities shall be routinely removed from the log transfer facilities and adjacent facilities and disposed of at an approved upland solid waste disposal site.
6. Bark Accumulation: The regulatory agency(ies) will impose an interim intertidal and submarine threshold bark accumulation level. When accumulations exceed the threshold level, cleanup—if any—will occur at the discretion of the permitting agency(ies). The interim threshold bark accumulation level is described as 100% coverage



exceeding both one acre in size and a thickness greater than 10 cm (3.9 inches) at any point.

7. Bundle Speed: The speed of log bundles entering receiving waters should be the slowest practicable speed achievable. Decisions on the allowable transfer system that can be used will occur on a site-specific basis during the permitting process.
8. Surface Drainage Management: The design, construction, and operation of LTFs, contiguous sort yards, and log storage yards shall utilize practicable procedures for control of surface water runoff from facilities.
9. Control of Hydrocarbons: The log transfer system and adjacent sort yard handling equipment shall be operated and maintained to minimize petroleum and lubricating products from entering waters.
10. Onshore Log Storage: Where feasible, preference must be given to onshore storage and barging of logs.
11. Facility Maintenance and Reclamation: The permitting shall maintain the structure or work authorized in good condition and in reasonable accordance with the approved plans and drawings. If and when the permittee desires to abandon the authorized activity herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring its interests to a third party, the permittee must restore the area to a satisfactory condition.

## **LTF Monitoring and Reporting Guidelines**

[Prepared by the LTF Guidelines Technical Subcommittee (1985)]

1. Monitoring by Permittee: Monitoring for bark accumulations, oil sheen, and surface runoff associated with the operation of log transfer facilities is the responsibility of the permittee. The regulatory agencies may, at their discretion, be responsible for some or all monitoring requirements.
2. Monitoring Requirements: Monitoring should be undertaken at all continuous- and intermittent-use LTF sites, and at those occasional- and incidental-use LTFs at which total volume of logs transferred is similar to that of intermittent-use sites. The level of monitoring and parameters to be monitored should be determined on a site-specific basis. Monitoring at occasional- and incidental-use facilities may be required on a site-specific basis. The need for monitoring of occasional- or incidental-use sites will be limited. Permittees will be required to submit a monitoring program to the permitting agencies prior to operation of a new continuous- or intermittent-use LTF. Agency approval of monitoring plans is required. Requirements for monitoring should be responsive to data obtained during prior monitoring activities.



3. Annual Monitoring for Bark Accumulation: At continuous- and intermittent-use LTFs, monitoring of bark debris accumulation should occur prior to the operating season as a minimum requirement. Monitoring at intermittent LTFs would occur only during those periods when the LTF is active.
4. Elements of Bark Accumulation Monitoring Program: Elements that should be included in a monitoring program for continuous- and intermittent-use LTFs are site-specific and may include but not be limited to:
  - (a) permanent transects;
  - (b) measurements of areal, extent, thickness and percent coverage of bark debris; and
  - (c) measurements (a) and (b) are from mean high water to depths of 60 ft mean lower low water.
5. Monitoring for Oil Sheen: Waters in the vicinity of an LTF shall be monitored during operations for the presence of a visible sheen and the presence of sheens shall be recorded when observed.
6. Monitoring Upland Discharges: On a case-by-case basis, discharges of rainfall runoff from the log sorting and storage yard and discharges from any settling pond used to treat water may require monitoring to ensure compliance with State Water Quality Standards and the Clean Water Act.
7. Reporting Guidelines: Routine annual reports include the following descriptive information:
  - (a) Location of LTFs (402/404 permits require latitude and longitude; Forest Service traditionally uses legal descriptions).
  - (b) Description of LTF, including transfer devices and sorting and storage areas.
  - (c) Permit holder and/or operator of LTF.
  - (d) Starting and ending dates of operating season (from first to last bundle), and number of operating days per season.
  - (e) Gross volume in board feet (Scribner Scale) or number of bundles transferred during the operating season.
  - (f) Monitoring data described in the monitoring guidelines.

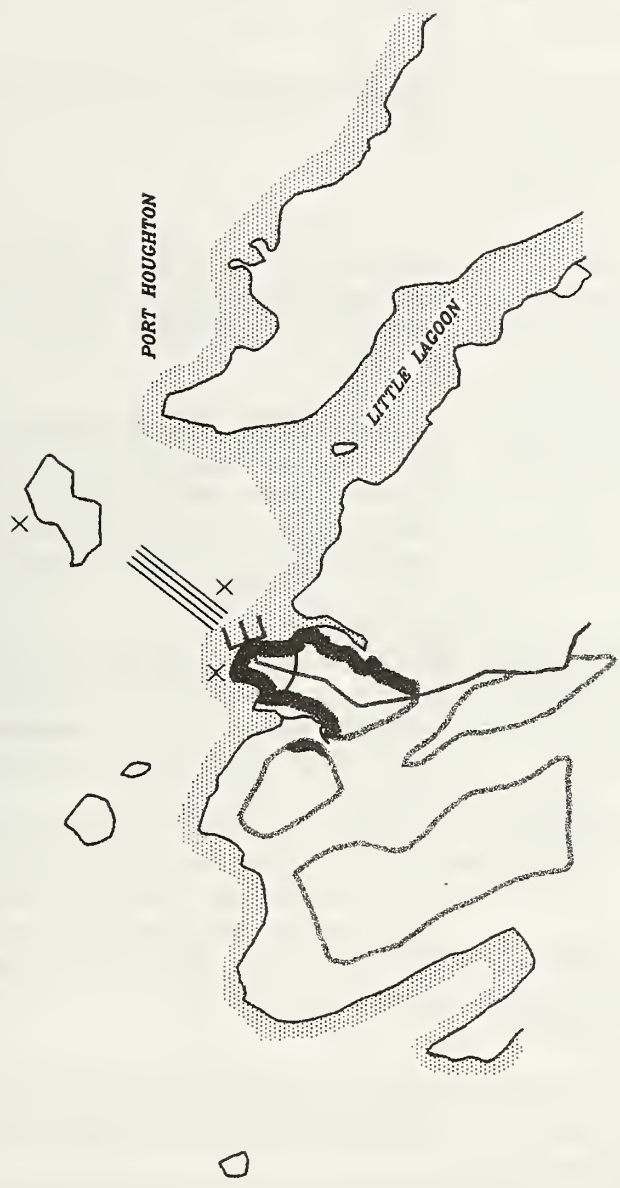
## Humpback Whales



Standards and guidelines have been developed by the Forest Service, applicable to LTF operations, to provide for the protection and maintenance of whale habitat. These guidelines for Forest Service permitted or approved activities include:

- Avoid intentional aircraft flights below 500 ft aboveground level in known vicinity of whales, when weather ceilings permit.
- Avoid intentional approach in a vessel of 100 or more ft in length to within ¼ mile of whales, when safe passage exists.
- Avoid intentional approach in a vessel of less than 100 ft in length to within 100 yds of whales, when safe passage exists.





# LEGEND

100' VISUAL BUFFER AREA	
330' EAGLE TREE BUFFER FOR HISTORICAL NEST NO LONGER PRESENT	
POTEN. SORT YARD AND/OR CAMP AREAS	
STREAM	
SHORELINE	
ROCK	
PROPOSED ROAD	
POTENTIAL LOG RAFT SITE	



FILE: C:\CAD\2437-01\FIG4

**Figure 1**  
**Port Houghton/Cape Fanshaw**  
**Little Lagoon**  
**Proposed LTF Plan**



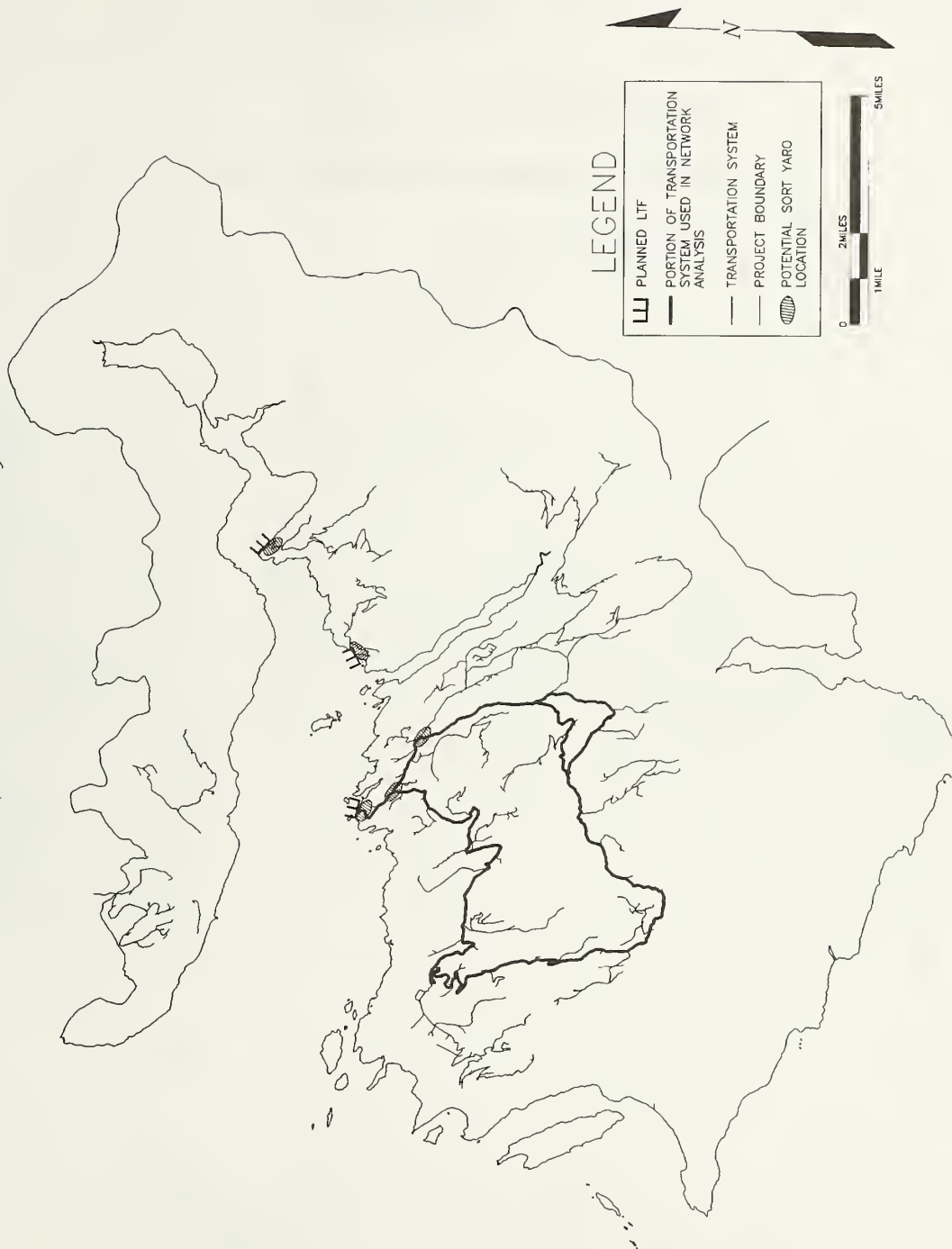
**Appendix Table K-1. LTF Siting Guidelines established by the Alaska Timber Task Force, 1985 - Little Lagoon.**

<b>S1. Proximity to Rearing and Spawning Areas:</b> Siting of LTFs and log storage facilities within 300 ft of the mouths of anadromous fish streams, or in areas known to be important for fish spawning or rearing, is normally prohibited.	LTF site is within 300 ft of the mouth of a Class I stream on the eastern end of the LTF site. A known Pacific herring spawn has been recorded 0.5 mile east of this site.
<b>S2. Protected Locations:</b> LTFs and log raft storage facilities should be sited in weather-protected waters with bottoms suitable for anchoring and with at least 20 acres for temporary log storage and log booming.	Eastern lee and offshore islands provide some protection from open waters.
<b>S3. Upland Facility Requirements:</b> LTFs generally should be sited in proximity to at least five acres of relatively flat uplands. There should also be a body of water sufficient to provide a minimum of 60 lineal feet of facility face.	At least 5 acres of relatively flat land occurs adjacent to this site. The operating face on the water exceeds 50 lineal feet.
<b>S4. Safe Access to a Facility from the Uplands:</b> To provide safe access to the LTF and adjoining log sort yard, the facility should be sited where access roads to the facility can maintain a grade of 10 percent or less for trucks and 4 percent or less for specialized equipment.	Access road grade is about 7 percent for several hundred feet.
<b>S5. Bark Dispersal:</b> LTFs should be sited along or adjacent to straits and channels or deep bays where currents may be strong enough to disperse sunken or floating wood debris. Siting LTFs in embayments with sills or other natural restrictions to tidal exchange should be avoided.	Moderate slope and depth at site along with biological indications of moderate currents at this site should help to disperse bark and reduce accumulation.
<b>S6. Site Productivity:</b> Sites for in-water storage and/or transfer of logs should be located in areas having the least productive intertidal and subtidal zones.	Intertidal and subtidal productivity are not particularly more or less productive than the majority of areas with similar habitats within the region. The relatively flat sand delta on the eastern end of the LTF site appears to be a relatively high productivity area for hardshell clams. Shifting the LTF site to the west would avoid impacts to the sand delta.
<b>S7. Sensitive Habitat:</b> LTFs and log raft storage should not be sited on or adjacent to (i.e., near enough to effect) extensive tideflats, salt marshes, kelp or eelgrass beds, seaweed harvest areas or shellfish concentrations.	Eastern edge of site is adjacent to a salt marsh. There is a small patch of eelgrass (approximately 5 ft by 5 ft) within the sand flat area at the eastern edge of the proposed site. Brown kelps are attached to bedrock and boulder at the site.
<b>S8. Safe Marine Access to Facilities:</b> Log rafting and storage facilities should be safely accessible to tug boats with log rafts at most tides on most winter days.	The LTF site is wide and deep enough to afford relatively safe and easy passage of tug boats, log rafts, etc. Configuration of the area provides relatively good protection from weather and open water at this site.
<b>S9. Storage and Rafting:</b> Logs, log bundles, and log rafts should be stored in areas where they will not ground at low tide. A minimum depth of 40 feet or deeper measured at MLLW for log rafts are preferred.	The site is large enough and deep enough to provide sufficient storage of logs.
<b>S10. Avoid Bald Eagle Nest Trees:</b> Site LTFs to avoid bald eagle nests. No project construction or operations should be closer than 330 feet to any bald eagle nest tree.	One inactive bald eagle nest (#43) occurs about 250 ft southwest of the LTF. A variance will be needed.



# PORT HOUGHTON EIS

## Transportation System





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Known Herring Spawn Areas in the Port Houghton/Cape Fanshaw Project Area









# **Appendix L**

## **Mitigation Measures**



# Appendix A

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# Appendix L

## Mitigation Measures

Mitigation measures may be specific to units and roads or applicable to specific areas in the overall project area where a resource concern occurs. The mitigation measures specific to a unit or road may include an enlarged stream buffer greater than 100 ft., full suspension logging to avoid stream damage, a partial harvest prescription to avoid visual impacts, or snag retention to provide standing timber for wildlife use. These measures are described in the unit and road cards. The approach used to mitigate concerns for each resource is described below.

### Timber

Mitigation measures for timber resources were developed specific to each unit through silvicultural prescriptions and adaptive management opportunities. The silvicultural systems used to mitigate timber resource concerns are described in detail in Appendix A under *Silvicultural Systems and Methods Applicable to the Project Area*.

### Marine

The majority of the mitigation measures applicable to the construction and use of LTF sites pertain to following compliance with the ATTF guidelines as described in Appendix K. Other mitigation considerations are described below.

### Wildlife

#### Silvicultural Opportunities That Enhance Wildlife Use

Slash Retention - Slash retention in harvested units provides cover for small wildlife species, notably amphibians, small mammals, and songbirds. Populations of these species are typically greater in slash retention areas, compared to cutover burned areas or harvest areas where slash is physically removed, because of the increased wildlife cover and foraging areas provided by the fallen timber. Plants and insects that occur in slash are closer to ground-foraging wildlife species. Slash will additionally intercept water runoff, thereby creating ponding effects and providing an immediate water source to wildlife. Slash retention is routinely conducted in clearcut areas within Southeast Alaska and is planned for all units proposed for harvest.

Snag Retention - Snag retention in units is recommended to ensure that snags remain available for cavity-nesting species following harvest and as clearcuts regenerate. Snags are used by wildlife for cavity sites, nesting platforms, sources of feeding substrate, plucking posts, singing or drumming sites, food caches, courtship locations, overwintering sites, roosting, lookout posts, hunting and hawking perches, fledgling sites, dwellings or dens, loafing sites, nesting under bark, communal nesting or nursery colonies, and thermally regulated habitat (Payne and Bryant 1994).



Green Tree Retention - This type of silvicultural treatment would occur in units identified as clearcut with reserves, overstory removal, and shelterwood with reserves. Green trees provide a source of standing residuals for snag recruitment and serve as down woody material when they blow over. The uprooted soils associated with the down trees may also provide the mineral soils needed to decrease podzolization. Standing green trees provide increased three-dimensional structure to cutover areas.

Feathering - Unit feathering is an approach used to decrease the visual impacts of clearcutting. Some units would retain cull trees within 75 to 100 ft. of the unit boundary to allow a transition between the cut unit and the adjacent old-growth timber. Feathering can also secure the newly created forest edge against windthrow. A feathered edge sustains lower predation rates than an abrupt edge (Ratti and Rese 1988). Retaining old-growth patches along edges of managed stands can increase effective old-growth area and provide greater benefits to deer over time (Kirchoff 1994).

### **Specific Wildlife Species Mitigation Measures**

Seabird Rookeries - This would include the Arctic tern nesting colony. Aircraft should avoid flying over the known nesting area which is in vicinity of the Salt Chuck. Based on the location of LTF facilities and the harvest areas and roads, activities can avoid this nesting colony.

Waterfowl - Human disturbance of waterfowl habitat should be minimized by regulating human use in important areas (such as the Sandborn Canal).

Any human disturbance activities will be a minimum of 330 or more between human activities and significant areas used by waterfowl.

Mountain Goat - Forest Service and State of Alaska permitted or approved flights should maintain a 1,500 ft vertical or horizontal clearance from traditional summer and kidding areas. Flight paths will seek to avoid known kidding areas from May 15 through June 15.

Sharp-shinned and Red-tailed Hawks - Located nests of these species should be protected during timber harvest both from noise and direct loss. Harvest activity should be avoided within 600 ft of the nest tree. Disturbance should not occur during the active nesting season including aircraft flights.

Great Blue Heron - As recommended in Proposed Revised TLMP (1996) Standards and Guidelines, active nests will be protected with 600 foot windfirm buffer of old growth forest habitat. Road construction through the buffer is discouraged. Prevent disturbance during the active nesting season (generally March 1 to July 31). Avoid direct aircraft flights on Forest Service permitted or approved activities.

Wolf - The observed wolf den should be protected from disturbance during harvest by following applicable standards and guidelines. Its location should remain confidential. Maintain a minimum 600-ft windfirm buffer of forested habitat around the den.



Marbled Murrelet - All located murrelet nests would have a 600-ft radius of undisturbed forest habitat surrounding the nest site. Disturbance would be minimized between May and August 15. Maintain buffer zone for at least two years.

Big Game - Hunting of all big game species should be closely monitored. If monitoring indicates the potential for significant impacts, stringent regulations may be required.

## **Biodiversity**

Mitigation measures to ensure the biological diversity is preserved in the project area are based on old-growth forest retention as described in the *Biodiversity* section of Chapter 4.

## **Threatened, Endangered, and Sensitive Species**

Applicable mitigation measures are described in the *Biological Evaluation*.

## **Fisheries and Water Resources**

Mitigation for the effects of timber harvesting, roads and associated activities in the Port Houghton/Cape Fanshaw project area include stream buffers, road closures, enhancement projects, erosion and sedimentation controls, and other specific BMPs designed to prevent or reduce adverse water quality impacts.

### **Road Closures**

Closing roads after timber harvesting has been completed would eliminate the traffic that erodes road tread. Permanent road closures that remove drainage features, regrade and revegetate slopes can limit erosion and sedimentation impacts by restoring soil infiltration and natural drainage patterns. Recommendations for closure of temporary or short-term roads (BMP 14.24) may be implemented on 21 to 23 percent of the total miles of road proposed under timber harvest alternatives. Specific road closures were recommended where roads cross potential slope stability hazards (Class III), V-notches, and salmon streams. Many of these recommendations have been incorporated in alternatives by designating roads to be constructed for temporary use only.

## **Physical Resources**

Areas of Class IV soils (Very High Hazard Soils) have been avoided through deletion and/or movement of units and roads to avoid these areas. Other approaches involved increasing stream buffer widths and partial harvests to minimize soil exposure and partial or full suspension logging methods as described in the unit and road summary cards. BMPS, as described in the monitoring plan, would be implemented to ensure that adverse impacts to the soils resource would be avoided. Large bogs, fens, and peatlands and floodplains were avoided to the extent possible during road layout. Culvert placement in wetland areas and large floodplains is recommended to allow drainage and subsurface water movement and surface water flow during floodflow water volumes, respectively.

## **Subsistence**

### **Beach Fringe and Estuary Protection**

Under the 1996 TLMP Revision the beach fringe and estuary land use designation emphasizes management of beach fringe and estuary habitats to favor wildlife,



fish, recreation, visual, and other associated resources. Beach fringe is defined as land up to 500 ft inland from mean high tide. An estuary is defined as a flat intertidal and upland area that occurs at the heads of bays and mouths of streams that is up to 1,000 ft inland from mean high tide. Estuaries include beach fringe habitats associated with these areas are managed as natural, undisturbed conditions. Although LTFs and associated roads are allowed in the beach fringe, other roads not associated with the LTFs are excluded from these buffer areas.

The areas of subsistence use in the project area are predominantly beach fringe areas. These areas were precluded from proposed timber harvest because of their land use designation. Only the minimum road construction and timber harvest necessary for LTF placement and operation is proposed under any action alternative. Harvesting beach fringe and estuary related resources, including firewood for subsistence use is allowed, subject to applicable federal and state regulations.

### **Road Construction and Closure**

Road closures could be important for maintaining viable population levels of game animals that are naturally low in the project area such as mountain goat, deer, and moose. Several roads proposed for timber harvest are recommended for closure following harvest to protect these resources. Closure of these roads would be coordinated with the needs of road closures and openings for other resources.

Road construction would also affect wildlife and subsistence resources through resource degradation of water quality, fish habitat, and soils. As identified in Good (1995a), BMPs would minimize these losses, with most impacts primarily occurring during the active logging period. These BMPs include bridge and culvert designs that allow fish passage and preserve water quality, and road erosion control plans.

### **Habitat Preservation**

During preparation of the unit and road pool for the action alternatives, a literature review was conducted to determine areas of historical subsistence use. When possible, these areas were then deleted for consideration when identifying units and roads for the unit and road pool. The areas that have been excluded from the unit and road pool and their known subsistence resources are described below:

- Salt Chuck - where deer and waterfowl and other birds have been harvested,
- Farragut Bay North Arm - where salmon, fish, birds have been harvested and trapping of furbearers occurs,
- Area North of Farragut Bay North Arm - where mountain goats have been harvested,
- North Shore of Port Houghton East of Goldbelt, Inc. Lands - where trapping occurs,



- South Shoreline of Cape Fanshaw - where deer have been historically harvested, and
- West Shoreline of Cape Fanshaw - where marine invertebrates, salmon, seals, salmon and other finfish have been harvested.

### **Other Mitigation Practices**

Logging camp facilities require special mitigation practices to decrease human disturbance effects on subsistence resources. In particular, land-based logging camps pose special problems by attracting black bears. Garbage disposal methods should eliminate the possibility of attracting bears by using bear-proof enclosures for storage and, if air quality regulations permit, garbage burning. The use of incinerators has been highly successful in reducing bear/human contacts around camps.

The exact use of subsistence resources are difficult to predict for the logging camp planned for the proposed project. It is assumed that harvest would be similar to the existing harvest at the Hobart Bay logging camp. It is important to monitor subsistence and recreation harvest in the project area during timber harvest for all big game species. If a substantially increased subsistence and recreation harvest becomes detrimental to big game populations, then harvesting should be restricted based on decisions by ADF&G.

## **Cultural Resources**

In all cases, mitigation of adverse effects to significant sites would follow the procedures set forth in Section 106 of the National Historic Preservation Act of 1966 and 36 CFR 800. Following these procedures would ensure that all of the public's concerns about cultural resources are effectively dealt with. This includes data collection, site protection and preservation, as well as confidentiality of site information.

## **Visual Resources**

Design and development of the action alternatives, units, and roads considered visual impacts on a site specific and overall basis. The Forest Service's Visual Management System encourage emulation of natural forest openings for unit design, and creating artificial "natural" openings. The mitigation measures that were incorporated in unit design have included the following:

- avoiding square corners and rigid geometry,
- avoiding thin screens of trees on ridgelines,
- avoiding long horizontal lines,
- ensuring that edges of clearings are irregular, especially the uphill backline,
- emulating alpine opening forms on ridges and slopes (even though alpine meadows would not be naturally present at lower elevations, the form would be usually viewed in context with existing alpine openings), and
- maintaining whole landscapes (for example, a protruding knob would not be half clearcut because this would accentuate the difference between forest cover and clearcut).



Helicopter logging has been prescribed in roaded areas where visual impacts would otherwise be significant. Units were selected for alternatives considering the cumulative visual impacts for specific viewsheds.



# **Appendix M**

## **Soil Hazard Class IV Map for the Project Area**



# Mathematics

Mathematics is the study of numbers, shapes, and patterns. It is a fundamental part of science and technology, and it is used in many other fields as well.



# Hazardous Class IV Soils in the Port Houghton/Cape Fanshaw Project Area



## Legend

- Forest Area Boundary
- Hazardous Class IV Soils
- Private or State Lands

Scale 1:150,000

Kilometers  
0 1 2 3 4 5

Miles  
0 1 2 3 4 5







# **Appendix N**

## **Reasons for Scheduling the Environmental Analysis of the Port Houghton/Cape Fanshaw Project Area**



# APPENDIX

THE FOLLOWING TABLES  
CONTAIN THE RESULTS OF  
THE ANALYSES OF THE  
SPECIMENS OF THE  
FISHES OF THE  
GULF OF MEXICO  
AND THE ADJACENT  
WATERS.



# **Reasons For Scheduling The Environmental Analysis of the Port Houghton/Cape Fanshaw Timber Sale Project**

## **Summary**

The purpose of this Appendix is to address the following questions regarding the relationship of this timber sale project to the Petersburg District of the Stikine Area, the Juneau District of the Chatham Area, and the Tongass National Forest Independent Timber Sale Program:

- 1.) Why are we planning timber harvest projects?*
- 2.) Why are we planning to harvest timber here?*
- 3.) Why are we planning to harvest timber in this area now?*
- 4.) Why can't we harvest timber in another location at this time?*
- 5.) Why are we planning to harvest the amount of volume identified for this project?*

## **Introduction**

A goal of the Tongass Land Management Plan (1997) is to manage the Forest to create desired resource values, products, services in ways that also sustain the diversity, function and productivity of ecosystems. The goals and objectives of the Forest Plan describe a mosaic of lands and resource conditions desired for the forest in the future. The forest mosaic will be composed of areas designated to remain in an old-growth condition such as Wilderness, National Monument, Congressionally designated Land Use Designation II (LUD II), and Old-Growth Habitat (and 9 other LUDs), while timber harvest is permitted to varying degrees in Modified Landscape, Scenic Viewshed and Timber Production zoned areas. The timber resource will be managed for production of sawtimber and other wood products from timber lands available for timber harvest in a sustainable manner (Forest Plan, Record of Decision, page 2).

### **1.) Why are we planning timber harvest projects?**

#### **Background**

Section 101 of the Tongass Timber Reform Act amended the Alaska National Interest Lands Conservation Act (ANILCA); P.L. 96-487) by deleting the following provision:

Sec. 705(a) The Congress authorizes and directs that the Secretary of the Treasury shall make available to the Secretary of Agriculture the sum of at least \$40,000,000 annually or as much as the Secretary of Agriculture finds necessary to maintain the timber supply from the Tongass National Forest to dependent industry at a rate of four billion five hundred million board feet measure per decade. Such sums will be drawn from receipts from oil, gas, timber, coal, and other natural resources collected by the Secretary of Agriculture and the Secretary of the Interior notwithstanding any other law providing for the distribution of such receipts: Provided, That such funds shall not be subject to deferral or recission under the Budget impoundment and Control Act of 1974, and such funds shall not be subject to annual appropriation.



and inserting:

Sec. 705. (a) Subject to appropriations, other applicable law, and the requirements of the National Forest Management Act (P.L. 94-588); except as provided in subsection 9d) of this section, the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the annual market demand from such forest for each planning cycle.

The Ninth Circuit found in Alaska Wilderness Recreation and Tourism Ass'n v. Morrison that "TTRA envisions not an inflexible harvest level, but a balancing of the market, the law, and other uses, including preservation. It thus gives the Forest Service leeway to choose among various site-specific plans, provided it follows the procedural requirements of the applicable statutes." The District Court of Alaska likewise found in Alaska Forest Association v. United States of America that "[a]llocating timber for sale is simply one of many factors which the Forest Service is to consider within its discretion in determining whether to make timber in the Tongass available for sale." The court also found: "TTRA's reference to seek to meet market demand was not a mandate. Instead, it was an admonition to be considered together with other goals in establishing a timber plan for the Tongass."

In light of TTRA and the findings of the Ninth Circuit Court, timber volume is one of the desired forest resource outputs identified in the decision of the Forest Plan signed by Regional Forester, Phil Janik on May 23, 1997. To provide this output, the Forest Service must balance its availability as stated in the Forest Plan (1997) and the demand for the volume in Southeast Alaska against other forest uses and funding allocations made by Congress.

Land use prescriptions have been established for 19 LUDs. Four groups of LUDs similar in management direction and environmental effects have been identified. Table 1 shows the 19 LUDs for the Forest Plan, as they fall within the four groups. The first two groups are also sometimes referred to as "non-development" LUDs, and the latter two groups as "development" LUDs.

Standards and guidelines for management prescriptions govern resource management activities and implementation of the Forest Plan. Some of these standards and guidelines apply to all lands, while other standards and guidelines apply to specific LUDs. These standards and guidelines take precedence over annual targets or projected outputs. No project or program will be funded for which the applicable standards and guidelines cannot be carried out.



**Table 1.**  
**Land Use Designations (LUDs) for the Tongass National Forest**

Tongass National Forest  
(16.883 million acres)<sup>1</sup>

<b>Non-Development LUDs</b> (13,428,299 acres)	<b>Development LUDs</b> (3,866,036 acres)
<b>Wilderness and National Monument</b> (5,885,387 acres)	<b>Intensive Development</b> (2,747,036 acres)
Wilderness National Monument Nat. Monument Wilderness	Timber Production Minerals Transportation/Utility Systems
<b>Mostly Natural</b> (7,542,912 acres)	<b>Moderate Development</b> (1,119,000 acres)
LUD II Old-growth Habitat Research Natural Area Remote Recreation Semi-Remote Recreation Municipal Watershed Special Interest Area Wild River Scenic River <sup>2</sup> Recreational River <sup>2</sup> Experimental Forests	Scenic Viewshed Modified Landscape

<sup>1</sup>In this table, the total area within each LUD is included. However, in some cases, more than one Land Use Designation can be applied to the same area (such as a Special Interest Area within Wilderness). Therefore, totaling the acres of the LUD's will exceed the total National Forest Acreage. No acreage has been calculated for the Transportation/Utility Systems LUD.

<sup>2</sup>Scenic River and Recreation River do permit some level timber harvest if the adjacent LUD permits harvest. Timber harvest must be in accordance with the stated visual quality management objective for the river.



The Tongass Land and Resource Management Plan Record of Decision (1997) states that the Tongass National Forest will continue to allow timber harvest while maintaining sustained yield and multiple use goals. The forest-wide standards and guidelines for timber include general direction to ensure that silvicultural systems other than clearcutting are considered through an appropriate project level analysis process. However, uneven-aged management systems will be limited to areas where yarding equipment suited to selection logging can be used (Forest Plan, chapter 4, Timber page 4-98)

The timber standards and guidelines include direction to "use clearcutting only where such a practice is determined to be the best system to meet the objectives and requirements of Land Use Designations (Forest Plan, Even-aged Systems, page 4-96)." The Plan estimates that clearcutting, using even-aged management, will predominate regeneration timber harvesting (about 80 percent). The timber standards and guidelines also state that the two-aged management system, in which some of the harvest unit is left uncut to provide structural diversity and a biological legacy in the regenerated timber stand, "may be used where windthrow or dwarf mistletoe are not major threats or can be tolerated" (Forest Plan, Chapter 4, Timber). This harvest method will account for at least 20 percent of regeneration harvests.

Forest-wide, considering all land allocations where timber harvesting is permitted, it is estimated that 65 percent of harvesting will involve clearcutting, with the remaining 35 percent utilizing other methods (Tongass Land Management Plan Revision ROD, 1997, page 5).

### **Lands Suitable for Timber Production**

The Forest Plan classifies lands suitable for timber production and determines where on those lands timber harvesting should be allowed, in accordance with NFMA regulations, 36 CFR 219.14(e), and Section 102 of the TTRA. Appendix A of the Forest Plan (1997) details the criteria and process used to determine the forest lands tentatively suitable for timber production. These are the lands capable of producing commercial volumes of timber on a sustained-yield basis, and are not in areas legislatively withdrawn from timber harvest. They are the only lands where regularly scheduled commercial timber harvesting may occur.

The LUDs further define where timber management may occur. Many areas in LUDs that do not allow commercial timber harvest contain tentatively suitable forest lands, but these lands will be managed for resource uses other than timber production. LUDs which allow timber management include Timber Production, Modified Landscape, Scenic Viewshed, Scenic River, and Recreational River. These LUDs total approximately 3.7 million acres (22 percent of the Tongass) and contain 1.3 million acres of tentatively suitable forest lands. Three of these LUDs, Timber Production, Modified Landscape, and Scenic Viewshed, account for nearly all of the 676,000 acres suitable and available for timber management under the Forest Plan.

### **Generation of the Allowable Sale Quantity**

The ASQ (Allowable Sale Quantity) for timber on the Tongass National Forest is established at 2.67 billion board feet per decade from the 676,000 acres of suitable and available acres where timber harvest can occur. The 2.67 billion board feet per decade ceiling is equivalent to an annual average of 267 million board feet (MMBF). While the decadal amount is an upper ceiling which cannot be exceeded, the annual harvest from the Tongass can vary from year to year.



The maximum amount of timber that can be harvested during the first decade of the Forest Plan implementation averages 267 MMBF per year. It is anticipated that 200 MMBF or less is will be offered over the next few years. This is due to the current market conditions and the transition from the Long Term Sale to Independent Sales that both the timber industry and the Forest Service is experiencing. Therefore, the public can expect the amount of timber to be offered annually to vary between 200 MMBF or less and 267 MMBF (TLMP ROD, 1997, page 8).

**Distribution of the Allowable Sale Quantity Among the Tongass National Forest Administrative Areas**

The three Administrative Areas of the Tongass National Forest (Chatham, Stikine and Ketchikan) play a combined role in providing timber volume for harvest. Each Area is allocated portions of the timber harvest program based on the availability of suitable and available acres, to meet the goals of the Forest Plan, the Organic Act and implementation of Section 101 of the Tongass Timber Reform Act (1990). The distribution of the planned ASQ harvest (267 MMBF) among the three administrative areas is as follows (All volumes are identified as sawlog plus utility) :

**Table 2**  
**Distribution of ASQ Among the Tongass National Forest Administrative Areas**

Chatham	51	MMBF
Stikine	95	MMBF
<u>Ketchikan</u>	<u>121</u>	<u>MMBF</u>
<b>Total</b>	<b>267</b>	<b>MMBF</b>

The ASQ consists of two separate categories known as Non-Interchangeable Components (NIC's). The NIC I component includes land that can be harvested with normal logging systems. The NIC II component includes land that has high logging costs due to isolation or special equipment requirements. The NIC I component of the ASQ consists of 2.2 billion board feet of timber per decade. The NIC II component of the ASQ consists of is 0.47 billion board feet per decade. While binding as an upper limit, the NIC components are estimates and do not reflect all of the factors that may influence actual sale levels. These components are non-interchangeable because the lower sale levels in one component may not be compensated for by higher sale levels in the other. The separate limits on each component are binding on a decadal basis. Approximately 80 percent of the ASQ is planned to be harvested from NIC I land and approximately 20 percent of the ASQ is planned from NIC II lands. This represents a higher reliance on lands represented in the NIC II component than in the past. The distribution of the NIC I and NIC II components among the three administrative Areas of the Tongass is as follows (All volumes are identified as sawlog plus utility):



**Table 3**  
**Distribution of ASQ NIC I and NIC II Quantities Among the Tongass National Forest**  
**Administrative Areas**

	Non-Interchangeable Components (MMBF)	
	NIC I	NIC II
Chatham	35	16
Stikine	77	18
<u>Ketchikan</u>	<u>107</u>	<u>14</u>
Total	219	48
Grand Total .....	267	

### **The Forest Planning Model (FORPLAN)**

FORPLAN is the primary modeling tool used to ensure that land allocations and output schedules for alternatives are realistic and meet standards and guidelines in a cost-efficient manner. FORPLAN is also used to conduct "benchmark" analysis of forest outputs. A benchmark is a set of values that indicate a maximum (or minimum) level of production capable under certain, often limited, constraints.

FORPLAN is used to translate forestland, yield, and constraint information into a linear programming model. This model is read into a program designed to solve and optimize series of simultaneous mathematical equations. Results from the modeling process are only approximations of what to expect when any given alternative is implemented. The objective of modeling is to aid planners in estimating likely future consequences of management actions (alternatives). A choice between alternatives can be made even though the model may lack precision in describing specific attributes of a given alternative. FORPLAN, very simply does two things: 1) creates a linear programming model, and 2) interprets the linear programming results.

FORPLAN models for the Tongass only analyze land classified as tentatively suitable for timber harvest. Tentatively suitable land are those lands which are capable of producing a growth of 20 cubic feet per acre per year, have not been withdrawn from timber harvest by law or land use designation, are capable of producing timber without irreversible damage to soil productivity or watershed conditions, and can be restocked and established with trees within 5 years after harvest.

The FORPLAN model uses numerous constraints to develop the ASQ, e.g., land management prescriptions, land use designations, standards and guidelines, and regulation classes, (see the Tongass Land Management Plan Revision FEIS Appendix B, Modeling and Analysis Process for additional information on the FORPLAN program). To calculate the ASQ, the model first maximizes timber harvest in the first decade of the 160-year planning horizon. This proceeds while adhering to all resource, legislative, and operational constraints. One constraint implemented is that all harvest in the first decade be sustained for the entire planning horizon. The model seeks to maximize the present net value for the planning horizon.



FORPLAN is a tool used to determine the mathematical allowable sale quantity outputs given numerous resource constraints and conditions. Given the linear programming function of the program and the models direction to maximize the present net value of timber outputs to the end of the planning horizon, FORPLAN is not a decision tool for timber harvest scheduling used by the three administrative areas on the Tongass. It simply provides an upper limit on the amount of timber that may be harvested as part of the regularly scheduled timber sale program. The actual scheduling of sales is a management function which takes factors such as infrastructure in place, location of proposed projects to other activities taking place on the Forest, economics, desired outputs relative to acres available, and many more.

### **The Tongass Timber Schedule**

Each of the three administrative areas of the Tongass National Forest is responsible for planning and implementing its timber sale program. In so doing, each annually develops a timber sale schedule based on current year and outyear timber demand, volume currently under contract, anticipated Congressional funding levels, and availability of resources to prepare sales for offer. Generally, the goal of each administrative area is to have a combined annual offer level of approximately 220 MMBF which parallels the NIC I component of the ASQ and the expectations stated in the Record of Decision for the Tongass Land Management Plan (1997).

An initial plan is developed at the beginning of each fiscal year and submitted in combination with the other two for budget allocations. Between October and December (1<sup>st</sup> quarter of the fiscal year) initial allocations to the Areas are made so work can commence on all or a portion of the initial sale plan submissions. During the second quarter of the fiscal year (January-March), final allocations are transmitted to the Areas. Should insufficient funding levels be allocated to the Areas to work on all projects submitted, then projects are delayed into the out-years. Conversely, should Congress identify a specific volume for offer higher with corresponding funds to produce the projects, sales are moved from the out-year to current year work. The sale plans become very dynamic in nature due to the number of influences on each of the three administrative areas of the Tongass.

### **The Stikine Area and Chatham Area Timber Sale Schedules**

Each Administrative Area of the Tongass (Chatham, Stikine, Ketchikan) plans timber sale preparation based on a ten-year period. This schedule allows the necessary time to complete preliminary analysis, resource inventories, environmental documentation, field layout preparations and permit acquisition, appraisal of timber resource values, advertisement of sale characteristics for potential bidders, bid opening, and physical award of the timber sale. The on-going process is necessary to maintain a NEPA-cleared stock of timber for an orderly timber supply program. In, general it takes approximately 3 years of time to move from project conception to advertisement of a timber sale.

The timber sale schedule is reviewed at least annually. The current timber sale schedules are attached. The schedules list a program level of approximately 77 MMBF per year over a ten-year period on the Stikine Area, and 34 MMBF per year over a seven-year period on the Chatham Area.



## **2.) Why are we planning to harvest timber here?**

The Tongass National Forest has identified a ten-year timber sale schedule which includes the Port Houghton/Cape Fanshaw Project Area location.

Reasons for scheduling the Port Houghton/Cape Fanshaw Project Area may be summarized as follows:

1. The Port Houghton/Cape Fanshaw Project Area contains a sufficient number of acres allocated to development land use designations to make timber harvest in the area appropriate under the Forest Plan. There is an adequate amount of suitable and available land for timber harvest opportunities (see Table 8). Available information indicates harvest of the amount of timber volume being considered for this project can occur consistent with the Forest Plan standards and guidelines and other resource protection requirements. The Port Houghton/Cape Fanshaw Project and proposed timber harvest volume contributes to achieving the goals and objectives of implementing the Forest Plan.
2. The anticipated effects of timber harvest activities on subsistence at the volume ranges identified is within the effects disclosed in the Forest Plan (1997). The potential effects on subsistence resources are projected to differ little according to which sequence these proposed timber sale projects are subjected to harvest.
3. The investment in infrastructure (roads, bridges, log transfer facilities, camps, rock pits, etc.) is necessary for sustainable timber harvest offerings. Where infrastructure already exists, this project will enable its maintenance and upgrade if the facilities are necessary for the removal of included timber volume.
4. Based on current year and anticipated outyear timber volume demand, volume currently under contract, anticipated Congressional allocations, and the availability of resources to fully prepare and offer this project for sale, this project is consistent with and meets Forest Service Policy in the Alaska Region, Regional Guide (11/83), the Tongass Land Management Plan (1997), and all other laws and regulations governing the removal of timber from National Forest System Lands.

### **Stikine Area Land Base by Land Use Designation (LUD)**

The Stikine Area is composed of 139 VCUs (Table 6a). Within the development LUDs allowing for timber harvest activities to take place, there are approximately 514,400 acres of suitable and available acres which produce the Stikine's portion of the Tongass National Forest ASQ (77 MMBF NIC I, 18 MMBF NIC II).



**Table 4A**  
**Land Base by Land Use Designation (LUD) for the Stikine Area**

Stikine Area, Tongass National Forest  
(3,556,925 acres)<sup>1</sup>

<b>Non-development LUDs</b> ( 2,234,767 acres)	<b>Development LUDs</b> ( 1,322,158 acres )
<b>Wilderness and National Monument</b> ( 693,357 acres)	<b>Intensive Development</b> ( 871,254 acres)
<b>Mostly Natural</b> ( 1,541,410 acres)	<b>Moderate Development</b> ( 450,904 acres)

<sup>1</sup> No acreage has been calculated for the Transportation and Utility System LUD.

**Chatham Area Land Base by Land Use Designation (LUD)**

The Chatham Area has a total of 421 VCUs (Table 6b). Within the development LUDs allowing for timber harvest activities to take place, there are approximately 140,000 acres of suitable available forest land. The Chatham portion of the Tongass National Forest ASQ is 35MMBF (NIC I) and 16 MMBF (NIC II).

**TABLE 4B**  
**Land Base by Land Use Designation (LUD) for the Chatham Area**

Chatham Area, Tongass National Forest  
(8,393,726 acres)<sup>1</sup>

<b>Non-development LUDs</b> ( 7,290,017 acres)	<b>Development LUDs</b> ( 1,103,709 acres )
<b>Wilderness and National Monument</b> ( 2,745,340 acres)	<b>Intensive Development</b> ( 793,347 acres)
<b>Mostly Natural</b> ( 4,544,677 acres)	<b>Moderate Development</b> ( 310,362 acres)

<sup>1</sup> No acreage has been calculated for the Transportation and Utility System LUD.



The Development LUDs identify the three areas that permit timber harvest to occur to varying degrees (Timber Production, Modified Landscape and Scenic Viewshed). Timber harvest is required to meet the management prescriptions for each LUD while also meeting the standards and guidelines for resource protection.

**The Port Houghton/Cape Fanshaw Project Area Land Base by Land Use Designation (LUD)**

The Port Houghton/Cape Fanshaw Project Area is comprised of six land use designations (Table 5) which encompass 134,318 acres. Development LUD's comprise 99,395 acres, where 47,346 acres are suitable and available for timber harvest. Based on the volume strata of the suitable acres, approximately 1,364 MMBF of suitable, available volume exists within the project area.

**Table 5**  
**Land Base of the Project Area**

<u><b>Non-development LUDs</b></u> ( 34,923 acres)	<u><b>Development LUDs</b></u> ( 99,395 acres)
LUD II	Scenic Viewshed
Old-growth	Modified Landscape
Remote Recreation	Timber Production
Semi-Remote Recreation	
Special Interest Area	

**Proposed Action**

The proposed action specifies the project proposal. The proposed action for the (Port Houghton/Cape Fanshaw) project identifies an expected outcome of 120 MMBF. The volume quantity was derived by performing a site-specific analysis of available suitable forest land in LUD's that permit timber harvest. The volume is not a target assigned to this project area but an amount of timber volume that can be produced from the project area and meet management prescriptions while maintaining options for future harvest entries. The proposed action is re-evaluated numerous times during the planning process. During the alternative formulation process, different harvest units are selected based on various issues and public concerns. The balancing of resource and public concerns are kept in focus during the alternative development process and evaluated during the environmental effects analysis.

**Discussion of the Range of Alternatives in the DEIS**

**3.) Why are we planning to harvest timber in this area now?**

After termination of the long-term timber sale contracts on the Tongass, the three administrative areas have more capabilities to produce a wider variety of sales to meet the anticipated needs of the industry. Generally, first-entry sales (timber sales offered in areas of the Tongass that have previously not had harvest activities, have no infrastructure, or have limited infrastructure in place to move volume from the stump to the water) have higher volumes in order to pay for and establish the



necessary facilities to move the timber volume. These sales begin with the construction of the log transfer facilities, the primary road system and other facilities which support the personnel and equipment. Once the infrastructure is in place, then the Forest Service has the ability to offer smaller sales tailored to specific industry needs. Examples of where infrastructure is in place are Mitkof Island, the north end of Kuiu Island, portions of Etolin Island, Chichagof Island, Kruzof Island and Zarembo Island. The Tongass National Forest is one of the few National Forests in the system that has not developed full access to its suitable and available land for timber harvest purposes. First-entry costs for timber harvest activities are more expensive here than in other portions of the National Forest System for this reason.

Generally, the volume removed is expected to pay for the infrastructure. When a project is selected in undeveloped areas, approximately one-third of the volume from suitable and available timber harvest acres is necessary to pay for the cost of the timber harvest facilities. This amount of volume varies greatly depending on the quality of the timber in terms of recovery per acre harvested, the species of volume contained within the project area, the number of miles of new road necessary to construct to harvest the timber, and the protection measures of other resource concerns.

Once the primary road system is in place, the Forest Service then has the ability to schedule significantly less volume on each successive timber sale entry. Rather than three entries removing one third of the volume each harvest entry, approximately one-third of the volume would be removed on the first entry, followed by small sales to harvest timber along the existing road systems, then another large sale would establish road access into a portion of the remaining timber, followed again by small sales. The life cycle of this scheduling is through the timber rotation cycle. Once completed, the cycle is anticipated to begin again. A significant point of this scheduling cycle is that in order to meet the anticipated ASQ in whole or in part for the entire rotation, all of the suitable and available lands scheduled for timber harvest must be entered.

The Stikine Area is approximately 3.8 million acres subdivided into 139 Value Comparison Units (VCU) which represent distinct watersheds. The Chatham Area is approximately 8.3 million acres arranged into 421 VCUs. The following table depicts where timber harvest can occur, where timber harvest is being planned, where it is active, and where it is not.



**Table 6A**  
**Stikine Area VCUs Where Timber Harvest is Allowed**

Stikine VCUs	
139	
\	
<u>52</u>	VCUs do not allow commercial timber harvest activities
\	
<u>87</u>	VCUs allow commercial timber harvest.
\	
<u>55</u>	VCUs have commercial timber sales actively being planned.
\	
<u>22</u>	VCUs have active commercial timber activities.
\	
<u>6</u>	VCUs have no activity planned or active at this time.
\	
<u>10</u>	VCUs have recently had timber harvest take place.
\	
<u>4</u>	VCUs which have insufficient suitable, available timber for harvest activities to take place.

**Table 6B**  
**Chatham Area VCUs Where Timber Harvest is Allowed**

Chatham VCUs	
421	
\	
<u>291</u>	VCUs do not allow commercial timber harvest activities
\	
<u>130</u>	VCUs allow commercial timber harvest.
\	
<u>58</u>	VCUs have commercial timber sales actively being planned or
\	have sales proposed.
<u>7</u>	VCUs have active commercial timber sales.
\	
<u>30</u>	VCU's have recently had timber harvest take place.
\	
<u>11</u>	VCUs which have insufficient suitable, available timber for harvest activities to take place.

The Stikine and Chatham Area Timber Sale Plans represent a reasonable solution to meet the Forest Plan goals and objectives while providing a wide variety of timber harvest opportunities. The Sale Plans respond to allocating harvest across available lands to help mitigate impacts of making timber volume available to the industry.



**Table 7**  
**Tongass National Forest Ten Year Timber Sale Schedule**  
**(5-23-98)**

<b>Year</b>	<b>Area</b>	<b>Sale Name</b>	<b>NEPA Document</b>	<b>VOL, MMBF</b>	<b>TOTALS</b>
1998	Chatham	10/97 to 3/98	6 sales	0.4	
		Long Reach Salvage	Long Reach	0.1	
		Knoll Salvage	Knoll	0.1	
		Rodman Bay	NW Baranof	31.3	
		Big Wind Salvage #1	Broad Cr.	0.02	
		Big Wind Salvage #2	Broad Cr.	0.06	
		Big Wind Salvage #3	Broad Cr.	0.1	
		Pig Pen Salvage	Muri Cr.	0.01	
		Little Wind Salvage	Sitkoh	0.01	
		ExHica Salvage	Hica	0.2	
		Little Hica Salvage	Hica	0.02	
					<b>CHATHAM 32.3</b>
1998	Stikine	10/97 to 3/98	4 sales	10.6	
		Bo	Bohemia	0.7	
		Clover	Shamrock	12.0	
		Crane	Crane/Rowan	7.0	
		Rowan mt	Crane/Rowan	16.0	
		Todahl Backline	Todahl Backline	6.0	
		Twin Ck	Twin Ck	3.0	
		Turn	Turn	1.7	
		Etolin	Etolin	2.1	
		Nemo	Nemo Loop	2.4	
		Corner	Etolin	1.0	
		Canal/Hoya	Canal Hoya	15.0	
					<b>STIKINE 77.5</b>
1998	Ketchikan	10/97 to 3/98	34 sales	4.4	
		Summit Lake	Lab Bay	18.2	
		Big Bob	Lab Bay	5.8	
		Old Tom Cedar	Old Tom Cedar	0.2	
		Tinman Salvage	Tinman	0.1	
		Cloudy	Cloudy	2.8	
		Brand X	Brand X	1.8	
		Cable/Drop	Polk Inlet	11.0	
		Teal 240	Polk Inlet	0.3	
		Dumpy ATC	Chasina	18.3	
		Picasso	Picasso	0.6	
		Shield	Shield	1.4	
		2014 Salvage	2014 Salvage	0.04	
		21 Salvage	21 Salvage	0.07	
		Log Salvage (5)	Various	0.5	
		Other Salvage (10)	Various	2.1	



		Beaverpond	Control Lake	0.1	
		Muskrat	Control Lake	0.2	
		North Thorne	Control Lake	2.8	
		Wolf Pup	Control Lake	1.5	
		Rush Angel	Control Lake	7.6	
		Rush Fast	Control Lake	1.3	
		Rio Beaver	Control Lake	5.6	
		West Steel	Control Lake	0.2	
		Lower Rio Beaver	Control Lake	0.1	
		Hard Steel	Control Lake	4.0	
		Big Salt	Control Lake	11.5	<b>KETCHIKAN 110.3</b>
		Shinaku	Control Lake	7.8	<b>TONGASS 220.1</b>
<hr/>					
1999	Chatham	Schultz Cove	NW Baranof	10.9	
		St. Johns	NW Baranof	9.3	
		Lisa Cr.	NW Baranof	6.0	
		NEKA I	8 Fathom	6.0	
		Small Sales	Various	2.5	<b>CHATHAM 34.7</b>
1999	Stikine	Crystal Creek	Crystal Creek	10.0	
		Skipping Cow	Skipping Cow	20.0	
		Kuakan	Kuakan	17.0	
		South Lindy I	South Lundenburg	2.0	
		Small Sales	Various	2.0	<b>STIKINE 51.0</b>
1999	Ketchikan	Toe-dance	Sea Level	10.0	
		Madder	Sea Level	10.0	
		Ten Pin	Sea Level	10.0	
		Longline	Polk Inlet	2.9	
		South Arm	Chasina	7.9	
		Port J	Chasina	11.0	
		North	Chasina	7.5	
		Shaheen	Control Lake	1.3	
		Logjam	Control Lake	1.9	
		Kogish	Control Lake	6.2	
		Control Center	Control Lake	0.6	
		Andie's Peak	Control Lake	2.1	
		Cedar Decline	Cedar Decline	11.0	<b>KETCHIKAN 89.4</b>
		Small Sales	Various	7.0	<b>TONGASS 175.1</b>
<hr/>					
2000	Chatham	Poision Cove	Ushk Bay	19.1	
		Indian River 1	Indian River	14.0	
		Small Sales	Various	2.0	<b>CHATHAM 35.1</b>
2000	Stikine	Madan	Madan	25.0	
		Honeymoon	King George	2.0	
		South Lindenbug II	South Lindenbug	10.0	



		Woodpecker	Woodpecker	10.0	
		Kuiu I	East Kuiu	22.0	
		Camp Carl	Etolin	1.0	
		Shamrock SS	Shamrock	2.0	
		Small Sales	Various	1.0	<b>STIKINE 73.0</b>
2000	Ketchikan	Orion	Sea Level	20.0	
		Sunny	Chommondeley	14.0	
		Dr. Point	Chommondeley	16.7	
		Thorne Island	Lab Bay	3.5	
		Cedar Decline	Cedar Decline	12.0	
		Staney Creek I	Staney Creek	10.0	
		Luck Lake I	Luck Lake	5.0	
		Luck Lake II	Luck Lake	8.0	<b>KETCHIKAN 99.2</b>
		Emerald Bay	Emerald Bay	10.0	<b>TONGASS 207.3</b>
2001	Chatham	Little Lagoon	Port Houghton	26.0	
		Ten Mile	Indian River	7.0	
		Small Sales	Various	2.0	<b>CHATHAM 35.0</b>
2001	Stikine	Douglas I	Douglas	30.0	
		Frenchy	Frenchy	3.0	
		Track	Woodpecker	5.0	
		Mosman	Etolin	15.0	
		Woronkofski	Woronkofski	10.0	
		S.Lindy SS 4	South Lindenburg	1.0	
		South Lindy II	South Lindenburg	2.0	
		Small Sales	Various	6.0	<b>STIKINE 72.0</b>
2001	Ketchikan	Mongoos	Port Stewart	30.0	
		Skowl	Cholmondeley	6.7	
		Perkins	Moir	23.0	
		Staney Creek 2	Staney Creek	10.0	
		Staney Creek 3	Staney Creek	15.0	
		Cedar	Cedar Decline	5.0	<b>KETCHIKAN 96.7</b>
		Small Sales	Various	7.0	<b>TONGASS 203.7</b>
2002	Chatham	Neka 2	8 Fathom	5.0	
		Crab Bay	Finger Mountain	14.2	
		Broad Creek	Finger Mountain	12.4	
		Small Sales	Various	3.0	<b>CHATHAM 34.6</b>
2002	Stikine	Whaletail	Etolin	15.0	
		Sunny Bay	Sunny Bay	10.0	



		Kuiu II	East Kuiu	22.0		
		Sumner	Sumner	6.0		
		S.Lindy SS 5	South lindenbug	1.0		
		South Lindy III	South Lindenburg	2.0		
		Small Sales	Various	5.0	<b>STIKINE</b>	<b>61.0</b>
2002	Ketchikan	Cabala	Port Stewart	20.0		
		Dutchman	Gravina	8.0		
		Palisade	Gravina	7.0		
		Black	Moir	11.3		
		Fredick	Moir	11.0		
		Dall	North Dall	10.0		
		Cedar Decline	Cedar Decline	10.0		
		Thorne 1 A	North Thorne	4.5		
		Thorne 2	North Thorne	5.0		
		Kos 1	Kosciusko Old Growth	8.0		
		Kos 3	Kosciusko Old Growth	3.0	<b>KETCHIKAN</b>	<b>104.8</b>
		Small Sales	Various	7.0	<b>TONGASS</b>	<b>200.4</b>
2003	Chatham	Ushk Bay 1	Ushk Bay	14.1		
		North Houghton	Port Houghton	11.0		
		Inbetween	Finger Mountain	8.1		
		Small Sales	Various	2.0	<b>CHATHAM</b>	<b>35.2</b>
2003	Stikine	Kuiu III	East Kuiu	20.0		
		Fanshaw 1	Houghton Fanshaw	31.0		
		Scott Peak	Scott Peak	15.0		
		Overlook	Overlook	5.0		
		Ess Lake	Crystal Creek	5.0		
		Olive Cove	Etolin	10.0		
		Back Channel	Back Channel	10.0		
		South Lindy IV	South Lindenberg	2.0		
		South Lindy SS 6	South Lindenberg	1.0		
		South Lindy SS 7	South Lindenberg	1.0		
		Small Sales	Various	4.0	<b>STIKINE</b>	<b>84.0</b>
2003	Ketchikan	Ferrous	Port Stewart	25.0		
		Friar	Gravina	5.0		
		Fling	Gravina	5.0		
		Santa	Scratching	24.0		
		Drops	Droppings	10.0		
		Thorne 1B	North Thorne	3.5		
		Thorne 3	North Thorne	3.0		
		Thorne NIC2	North Thorne	5.0		
		KOS 2	Kosciusko	4.0		
		KOS 4	Kosciusko	5.0		
		Red 1	Red Bay	3.0		



		Red 2	Red Bay	1.0		
		Red 3	Red Bay	1.0		
		Sarkar 1	Sarkar	6.0	<b>KETCHIKAN</b>	<b>107.5</b>
		Small Sales	Various	7.0	<b>TONGASS</b>	<b>226.7</b>
<hr/>						
2004	Chatham	Saltery	Finger Mountain	10.2		
		False Island I	False Island	11.5		
		8-Fathom Helicopter	8-Fathom	11.3		
		Small Sales	Various	2.0	<b>CHATHAM</b>	<b>35.0</b>
<hr/>						
2004	Stikine	Critten	Critten	20.0		
		North Kupreanof I	North Kupreanof	19.0		
		Dry Strait	Dry Strait	7.0		
		Fanshaw 2	Houghton Fanshaw	6.0		
		S.Lindy SS 8	South Lindenberg	2.0		
		Small Sales	Various	7.0	<b>STIKINE</b>	<b>61.0</b>
<hr/>						
2004	Ketchikan	Recovery	North Revilla	10.0		
		Stump	North Revilla	10.0		
		Sweep	North Revilla	10.0		
		Abney	North Revilla	5.0		
		Elf	Scratching	6.0		
		Keete 1	Keete	15.0		
		Keete 2	Keete	10.0		
		Sarkar 2	Sarkar	2.0		
		Sarkar 3	Sarkar	2.0		
		Tux 1	Tuxekan	4.0		
		Tux NIC2	Tuxekan	1.0		
		Lower Logjam	Lower Logjam	20.0	<b>KETCHIKAN</b>	<b>102.0</b>
		Small Sales	Various	7.0	<b>TONGASS</b>	<b>198.0</b>
<hr/>						
2005	Chatham	Kennel 1	Kennel Cr.	6.0		
		Ushk Bay 2	Ushk Bay	7.0		
		Couverden 1	Couverden	10.0		
		False Island 2	False Island	10.0		
		Small Sales	Various	2.0	<b>CHATHAM</b>	<b>35.0</b>
<hr/>						
2005	Stikine	North Kupreanof	North Kupreanof	20.0		
		Backline	Kuiu	26.0		
		Wrangell	Wrangell Island	2.0		
		Bahl	Zarembo	5.0		
		Mad Bay	Mad Bay	7.0		
		Point Ward	Point Ward	10.0		
		South Lindy V	South Lindenberg	2.0		
		Whiskey	Whiskey	6.0		
		Small Sales	Various	5.0	<b>STIKINE</b>	<b>83.0</b>



2005	Ketchikan	Burl	Cleveland	10.0		
		Doyle	Cleveland	10.0		
		Artic	Cleveland	10.0		
		Kassa	Keete	8.0		
		Hyde 1	Pickens	10.0		
		Hyde 2	Pickens	16.0		
		Biltmore	Biltmore	5.0		
		Shaheen 1	Shaheen	7.0		
		Shaheen 2	Shaheen	3.0		
		11 Mile	Eleven Mile	10.0		
		Steelhead	Steelhead	7.0		
		Small Sales	Various	7.0		
				<b>KETCHIKAN</b>	<b>103.0</b>	
				<b>TONGASS</b>	<b>221.0</b>	
2006	Chatham	False Island 3	False Island	8.0		
		Couverden 2	Couverden	6.0		
		Iyouktug	Iyouktug	6.0		
		Upper Tenalee 1	Upper Tenakee	13.0		
		Small Sales	Various	2.0		
				<b>CHATHAM</b>	<b>35.0</b>	
2006	Stikine	Fools	Fools/SE Cove	10.0		
		Midway	Midway	5.0		
		Rynda	Rynda	6.0		
		South Fanshaw	South Fanshaw	25.0		
		Backline II	Kuiu	15.0		
		S.Lindy	South Lindenberg	2.0		
		Small Sales	Various	12.0		
2006	Ketchikan	Smalian	South Revilla	10.0		
		Turnbull	South Revilla	10.0		
		Cap	South Revilla	10.0		
		Wolf	Pickens	6.0		
		St. Johns	St. Johns	3.0		
		Tomzie	Tomzie	15.0		
		Goat Island	Goat Island	7.0		
		Klawock Lake	Klawock Lake	10.0		
		Hatchery	Hatchery Creek	8.0		
		Heceta	Heceta Thin	5.0		
		Decline	Decline	5.0		
		Kosciusko	Kosciusko Thin	5.0		
		Kogish	Kogish	10.0		
		Small Sales	Various	7.0		
				<b>TONGASS</b>	<b>221.0</b>	
2007	Chatham	Couverden 3	Couverden	8.0		
		Freshwater Heli	Kennel Cr.	6.0		
		Upper Tenakee 2	Upper Tenakee	9.0		
		Kruzof 1	Kruzof	10.0		



		Small Sales	Various	2.0	<b>CHATHAM</b>	<b>35.0</b>
2007	Stikine	South Blind	South Blind Slough	4.0		
		Dry Bay	Dry Bay	15.0		
		Central Kupreanof	Central Kupreanof	15.0		
		Overlook 2	Overlook II	4.0		
		Muddy River	Muddy River	5.0		
		Todhal Cable	Todhal Cable	5.0		
		So.Kupreanof Helio	So.Kupreanof Helio	2.0		
		Critten II	Critten	10.0		
		Backline	Etolin	10.0		
		Small Sales	Various	5.0	<b>STIKINE</b>	<b>75.0</b>
2007	Ketchikan	Sandy Beach	Sandy Beach	15.0		
		Big Lake	Big Lake	5.0		
		Naukati	Naukati	10.0		
		Neck Lake	Neck Lake	5.0		
		Small Sales	Various	7.0		
		Whistle Stop	Blacktop	10.0		
		Tomco	Blacktop	7.0		
		Icon	Wysiwg	10.0		
		Splat	Wysiwg	3.0		
		Last Gulp	Wysiwg	2.0		
		Thorne Arm	Thorne Arm	10.0		
		Carroll Inlet	Carroll Inlet	10.0		
		Chin Point	Chin Point	10.0	<b>KETCHIKAN</b>	<b>109.0</b>
		Carroll Creek	Carroll Creek	5.0	<b>TONGASS</b>	<b>219.0</b>

#### 4.) Why can't we harvest timber in another location at this time?

In order to achieve the Regional Forester's objective of approximately 200 MMBF of annual timber offer in the near-term as documented in the Record of Decision for the Tongass Land Management Plan (1997), the Stikine Area's timber resource goal is to supply approximately 77 million board feet of timber volume annually as part of the total Tongass National Forest output. The Ketchikan Area's portion of the Regional Forester's goal is 107 MMBF and the Chatham Area's portion is 35 MMBF. Table 8A and 8B list the timber sale project areas on the Stikine and Chatham Areas.

**Table 8A**  
**Stikine Area Recent, Current and Scheduled Timber Sale Project Areas**

Scenic Viewshed (SV), Modified Landscape (ML), Timber Production (TP)

*The current active project areas on the Stikine are as follows:*

Project Area	Land Use Designations	Acres of Tentatively Suitable Forest Lands <sup>1</sup>
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Bohemia	SV, ML, TP	7,643
Alternatives to Clearcutting (ATC)	SV, ML, TP	2,560
Shamrock	SV, ML, TP	18,519
Deep Bay	SV, TP	9,292
King George	SV, ML, TP	3,024

*The areas on the Stikine that currently have on-going NEPA documents being prepared in various project areas include the following:*

Project Area	Land Use Designation	Acres of Tentatively Suitable Forest Lands
South Lindenberg	SV, ML, TP	14,336
Crane and Rowan Mountain	SV, ML, TP	49,774
Todahl	SV, ML	3,827
Crystal	SV, ML, TP	10,035
Twin Creek	SV, ML	2,522
Central Mitkof Island	SV, ML, TP	17,276
Skipping Cow	SV, ML	5,356
Madan	SV, ML, TP	6,181
Donut	SV	2,961
Nemo	SV, ML, TP	3,821
Canal Hoya	ML, TP	2,241
Kaukan	ML, TP	3,039

*The project areas on the Stikine that have timber sales planned on the Ten Year Timber Sale Plan include the following:*

Project Area	Land Use Designation	Acres of Tentatively Suitable Forest Lands
East Kuiu	ML, TP	20,257
Port Houghton	SV, ML, TP	10,828
Dry Bay	SV, ML, TP	2,812
Scott Peak	SV, ML, TP	7,001
North Kupreanof	SV, ML, TP	14,110
Douglas	SV, ML, TP	13,675
Woodpecker	SV, ML, TP	7,245
Whiskey	SV	3,439
Baht	SV, ML	3,635
John	SV, TP	10,287
Rynda	SV	2,624
Woronkofski	SV	3,405
Crittendon	SV, ML, TP	9,362
Pats Yellow	SV, ML, TP	2,600
Highbush	SV, ML, TP	5,981
Midway	SV	480
Back Channel	SV, TP	2,460
Shady	TP	2,700



Fools	SV, TP	3,139
Starfish	SV, ML, TP	7,976
Mossman	SV, ML, TP	5,285
Olive Cove	SV, ML, TP	5,443
Whaletail	SV, ML	2,159
Point Warde	SV, ML	1,180
Frosty	ML, TP	3,581
Sunny Bay	ML, TP	1,984

*Project areas on the Stikine that are not planned for timber harvest on the Ten Year Sale Plan include 19,348 tentatively suitable forested acres.*

**Table 8B**  
**Chatham Area Recent, Current and Scheduled Timber Sale Project Areas**

Scenic Viewshed (SV), Modified Landscape (ML), Timber Production (TP)

*The current active project areas on the Chatham Area are as follows:*

Project Area	Land Use Designations	Acres of Tentatively Suitable Forest Lands 1 /
SEIS Analysis Area II	SV, ML, TP	13,239
Kelp Bay	SV, ML, TP	23,795

*Areas on the Chatham with either recently completed or on-going NEPA documents :*

Project Area	Land Use Designation	Acres of Tentatively Suitable Forest Lands
Port Houghton	SV, TP *	26,369*
Ushk Bay	SV, ML, TP	9,206
Eight Fatham	SV, ML, TP	19,759
Northwest Baranof	SV, ML, TP	22,116
Indian River	TP, ML	13,253
Finger Mountain	SV, ML, TP	18,788

\* Chatham Area portion of Project only

*Areas on the Chatham Area where timber sales are proposed but NEPA analysis has not begun:*

Project Area	Land Use Designation	Acres of Tentatively Suitable Forest Lands
Kennel	SV, ML, TP	27,360



Windham Bay	SV, TP	23,302
Couverden	SV, TP	16,416
Kruzof	ML, TP	13,036
False Island	SV, TP	101,616
Iyouktug	SV, TP	29,738
Upper Tenakee	ML, TP	88,317

*Project areas on the Chatham Area that are not planned for timber harvest on the Ten Year Sale Plan include the following:*

Project Area	Land Use Designation	Acres of Tentatively Suitable Forest Lands
Silver Bay	ML	15,056
Lynn Canal	ML,SV	82,505
Gilbert Bay	SV, ML, TP	82,930

<sup>1</sup>Acres of tentatively suitable commercial forest land data figures are from the GIS data point system and not from the polygon system of area measurement. These data figures are from the Tongass Land Management Plan source and are intended to be used on a Forest scale (approx. 17 million acres). These data figures will differ from site specific project level data figures.

In essence, all areas with suitable and available timber are being analyzed for timber harvest projects. The goal of the Tongass has been to provide a wide variety of sales over multiple areas in order to meet the needs of the industry and limit the effects of timber harvest to a minimum on each entry.

##### **5.) Why are we planning to harvest the amount of volume identified for this project?**

The amount of volume identified for this project is based on 1) the amount of the suitable and available acres within the project area; 2) the effects from and timing of previous harvest; 3) other resource and subsistence use issues; 4) current volume under contract and its location; 5) anticipated demand for timber in the future; 6) the amount of timber volume being prepared on the District, on the Area, and on the Tongass in relation to the availability of resources to produce the sale; and 7) the funding allocations.

NEPA requires a reasonable range of alternatives to be addressed through public disclosure. The Forest Service has presented environmental documents for projects that display a number of alternatives with a wide range of volume as well as projects that display a number of alternatives with a very narrow range of volume. In all cases, the Forest Service discloses an anticipated volume to be produced from the project either in the Notice of Intent to Prepare and Environmental Impact Statement, the Purpose and Need statement of the environmental document or the Proposed Action statement.

The goal of the Forest Service in analyzing effects associated with timber harvest activities is to provide the decision maker, as well as the public, with adequate knowledge of the anticipated effects in order to make a well-informed decision or provide substantive comments for project consideration. The Forest Service analyzes and considers a no action alternative, which is a viable



alternative. This alternative responds to public comments requesting that no harvest activities take place. When the issue of wildlife habitat impacts is raised then under similar action alternatives, spatial movement of the harvest units can have the same effect as lessening volume (acres impacted) in one alternative versus another alternative. By treating each alternative similarly, distinct trade-offs can be seen.

What is difficult to distinguish and measure are the effects over time. The question then becomes, how should the landscape be managed over time. Using the example cited above, if the decision is to harvest in 2 million board foot increments, it means the area would be entered more frequently. The area would then have more frequent successive entries in order to harvest a similar timber volume. The area is in a constant disturbance state with timber harvest activities. This is analogous to the use of the National Forest adjacent to a community connected with a road system, like Petersburg. If the decision is to harvest 30 million board feet, the area is entered for harvest and then left to rest for a longer period of time. Both scenarios are valid management techniques. The technique of harvesting for instance, 30 MMBF and then leaving the area is a common approach used on outer island areas where it is expensive to access the site for planning and expensive for timber purchaser's to mobilize and maintain field camps and equipment.

For the Port Houghton/Cape Fanshaw Timber Sale Project, the anticipated volume to be removed from the sale is 120 MMBF of timber volume from the project area. The alternatives displaying the effects of the project vary in outputs from 11 MMBF to 140 MMBF. The anticipated volume is the amount needed to achieve the goal of the Regional Forester's decision for the Tongass Land Management Plan (1997) and the intent of Section 101 of the Tongass Timber Reform Act.

## **Timber Demand**

### **Southeast Alaska Economic Market Situation**

Scheduling sales to meet the needs of the industry is a complex task. If the Stikine and Chatham Areas each had one potential operator capable of harvesting 77 and 35 MMBF per year, respectively, from one project area, then one could expect to see one project or a combination of projects each year from the Stikine and Chatham at approximately 77 and 35 MMBF. However, this is not the case. The timber industry is comprised of a number of operators from southeast Alaska as well as the remainder of the U.S. Demand for sales ranges in size from one tree to large sales where investments can be spread over time. To compound the complexity of this demand, some purchasers have interest in certain species of timber, have limited harvest and road building capabilities, may or may not process timber, own facilities of varying sizes, meet Small Business concerns, or are large business entities, are community dependent, are capable of large operations with limited support facilities, etc. While the Forest Service strives to meet the needs of various operators, any individual, depending on how a sale is advertised, can bid and acquire a timber sale. Should a sale be purchased by a company other than those being targeted, then a shortage is generated by one segment of the industry.

As in the rest of the world, timber demand in Southeast Alaska varies dramatically on an annual basis. The level of demand is difficult for the Forest Service and the timber industries to predict with any precision. Demand is not a single number but a set of relationships over a specific period of time. Various factors influence the demand for Southeast Alaska timber, including interest rates,



housing, business cycles in the United States and overseas, the value of the dollar with respect to foreign currencies, changes in import tariffs and changes in export policies locally and abroad.

The demand for Southeast Alaska timber depends to some extent on how successful local processors are in competing for market shares in the global economy. Federal timber manufacturers of the Tongass must be able to produce products from a wide array of species and grades of timber to be competitive given the transportation cost to get products to the market place and federal regulation that restrict export. Success of Alaska's wood products industry hinges on manufacturers achieving a competitive position in wood markets in the lower 48 and overseas. Alaskan manufacturers face steep competition from traditional and non-traditional wood supplying countries.

The timber industry in Southeast Alaska is currently in a period of transition from the long-term sales (Alaska Pulp Corporation and Ketchikan Pulp Company) to a total independent open market timber sale program. New mills are under construction (Silver Bay in Wrangell, the Seely Mill in Ketchikan) and others are undergoing upgrades (e.g., Viking Lumber Company in Klawock). The capacity of sawmills in Southeast Alaska was estimated to be 241 million board feet at the close of calendar year 1997. (Fred Walk, Director of Forest Management, December 1997)

Demand can be estimated by using historical figures of actual output or using a set of relationships to determine a range of timber to offer based on installed mill capacity, mill utilization rates, harvest projections and contribution to competitive operation of the region and the role in global markets.

### **Timber Buffer Stock (Volume Under Contract)**

For all of the reasons mentioned above, the Forest Service does not try to predict and budget for the actual demand in any specific year. Instead, the Forest Service approaches annual demand with the concept of a "buffer stock" timber supply. The approach is to seek to provide an opportunity for the timber industry as a whole to acquire a supply of purchased but unharvested timber equal to about three years of timber consumption. At the close of calendar year 1997, this amount of timber would be in the range of 600-700 MMBF of uncut volume under contract, (Kathleen Morse, R-10 Regional Economist, work in progress). This quantity considers the average rate of harvest for the past few years, and any indicators of change in the rate from planning cycle projections or other sources. The idea is that if demand for lumber and chip grade logs in any year suddenly increases, producers will have enough harvestable timber on hand to respond to the increase in demand for forest products without waiting for the Forest Service or for Congress to take action. Normally, the Forest Service would expect that the volume under contract would be drawn down during high points in the business cycle and would be built up during the low points.

Changes in buffer stocks, the volume under contract, serve as signals to the Forest Service to consider adjusting its budget and program of work. When harvest activity reduces volume under contract below target levels, the Forest Service will consider requesting additional funds from the Regional Office, and ultimately from Congress, to prepare additional timber sales. Conversely, when the volume under contract goes above target levels, the Tongass will consider decreasing funding requests and sale preparation efforts. The timber volume in the process of being prepared for offering is often referred to as the timber "pipeline". The "pipeline" consists of all activities associated with timber sale preparation and accounted for by the Gate System where the gate is considered completed when various milestones are produced:



*Gate 1- Position Statement*

*Gate 2- Sale Area Design, Environmental Documentation and Decision*

*Gate 3- Plan Implementation and Field Layout*

*Gate 4- Appraisal Offering Package*

*Gate 5- Bid Opening*

*Gate 6- Award*

*Post Formal Gate Process- Sale Administration, Monitoring,  
Reforestation, Timber Stand Improvement*

The Forest Service's ability to respond in this way will, of course, be limited by the fiscal policies established by the Congress and the Administration. Timber industry representatives as well as other interested parties have access to the Regional Forester, other Executive branch officials, and the Congress in determining funding for Tongass timber sales through the appropriations process each year (AFA v. US, et al., Declaration of Frederick Norbury, October 14, 1994).

## **Conclusion**

The conclusion is that the timber volume being considered in the Port Houghton/Cape Fanshaw Project Area is reasonable in placement, timing, and amount; is consistent with the Forest Plan and Record of Decision as well as timber demand estimates by the Pacific Northwest Research Station, Brooks and Haynes, and Kathleen Morse (Economist, Region 10). The timber volume identified for the project is necessary to meet overall program goals as stated in the Forest Plan and is a reasonable and consistent interpretation of the Tongass Timber Reform Act (1990). Based on the above, the Stikine Area Independent Timber Sale Program is responsive to public issues, subsistence needs, and the timber industry.



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